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ABSTRACT

This teacher's manual attempts to prepare students to respond to any disaster by providing information about natural and manmade disasters, general strategies for preparedness, survival techniques, a rationale for effective community action, the knowledge needed to face the emotional shock of disaster, and familiarity with the roles and responsibilities of federal, state and local agencies. Each chapter includes a statement of goals and objectives, questions and learning activities, individual projects, and evaluation in the form of essays or quizzes. The manual lists resources available to the teacher for instruction on civil defense, forest fires, heat waves, tornadoes and thunderstorms, hurricanes, floods, earthquakes and tidal waves, technological failures, environmental pollution, nuclear disaster, warning systems, and home shelters. (Author/LAA)

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TEACHER'S MANUAL FOR YOUR CHANCE TO LIVE

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TEACHER'S MANUAL FOR

YOUR CHANCE TO LIVE

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The Laboratory was established through a Joint Powers Agreement in February 1966. Signatories as of September 1972 include:
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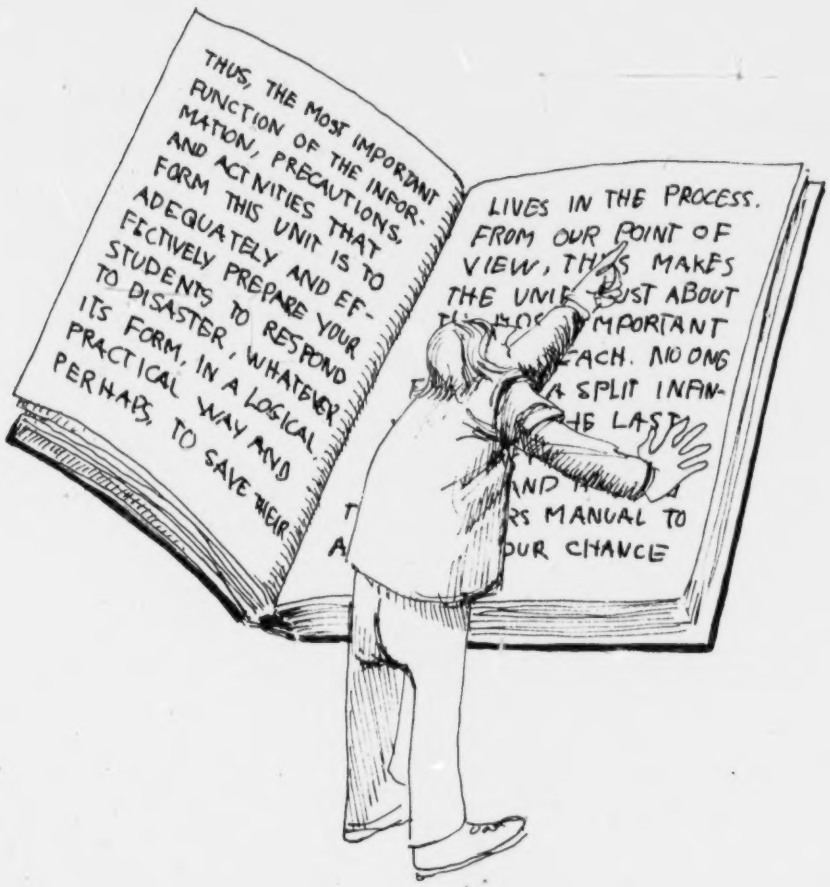
A TEACHER'S MANUAL


THUS, THE MOST IMPORTANT FUNCTION OF THE INFORMATION, PRECAUTIONS, AND ACTIVITIES THAT FORM THIS UNIT IS TO ADEQUATELY AND EFFECTIVELY PREPARE YOUR STUDENTS TO RESPOND TO DISASTER, WHATEVER ITS FORM, IN A LOGICAL PRACTICAL WAY AND PERHAPS, TO SAVE THEIR
LIVES IN THE PROCESS.
FROM OUR POINT OF VIEW, THIS MAKES
MANUAL TO
OUR CHANCE

NO ONE EVER BURIED A SPLIT INFINITIVE

No student has ever been carried to the hospital because he didn't know the chronology of the presidents of the United States. But as this manual was being written, several hundred Americans died in a flood in the midwest and in a hurricane that ripped across the northeastern United States a week later. We do not know, of course, how many of those that died could have been saved if they had followed the commonsense precautions and procedures that form the body of this manual and *Your Chance To Live*, but if only one survived as a result of something a teacher once taught him, then the place of this and similar units in the curriculum is justified.

Whether you live in Illinois, Kansas, California, New York, Texas, New Mexico, Alaska, or Hawaii, the chances are that sometime a natural or man-made disaster may strike your community. When it does, the extent of damage and the number of lives lost may be determined by how well people have prepared for and are able to handle the disaster.

The most important function of the information, precautions, and activities that form this unit is to effectively prepare your students to respond to any disaster, in an intelligent, practical way, and hopefully to save their lives in the process.

The teacher's manual to accompany *Your Chance To Live* is organized around several ideas which are the framework for all the subsequent activities. They are:

1 Given the probability of disaster, a rational person takes precautions to minimize the danger to life and property.

2 Although some basic safeguards are realistic for all disasters, appropriate disaster precautions and preparations are often determined by geographic, meteorologic, seasonal, and political factors.

3 Some appropriate response to disaster is determined by the individual characteristics of the disaster itself.

4 As a function of government, the Nation has created a civil preparedness system designed to warn of approaching disaster and to assist before, during, and after disaster occurs.

5 Psychological factors often determine how well an individual handles disaster. A person who knows certain basic survival concepts is more apt to respond calmly and intelligently.

OBJECTIVES, TEACHING STRATEGIES, AND ORGANIZATION

The product of this unit on survival shouldn't be inert knowledge, but rather the kind of understanding a student can carry out of the classroom, translating it into an appropriate response when and if disaster strikes.

It seeks to give students basic information about the type and intensity of natural and manmade disasters, general strategies for preparedness, (e.g., the early recognition of disaster warning signals), survival techniques, a rationale for effective community action, the knowledge he or she needs to face the emotional shock of disaster, and familiarity with the roles and responsibilities of federal, State, and local agencies.

The role of the teacher's manual is to help insure that the day-to-day quality of teaching results in both student involvement and effective learning. This manual, which accompanies *Your Chance To Live:*

1 Offers the teacher a motivational and logical rationale for teaching an extended unit on survival.

2 Offers the teacher concepts and goals for the whole unit and for each chapter in *Your Chance To Live.*

3 Offers a variety of alternative teaching strategies, including introductory activities for each chapter, questions and group activities, and individual activities which support the information in the text and translate it into a means for involvement.

4 Offers lists of available bibliographic and audiovisual materials.

5 Offers informal evaluation procedures for each chapter.

Each chapter in the teacher's manual follows a recurring pattern.

1 Chapter Goals: The aims of each chapter are stated in terms of what the student should know and be able to do as a result of chapter activities.

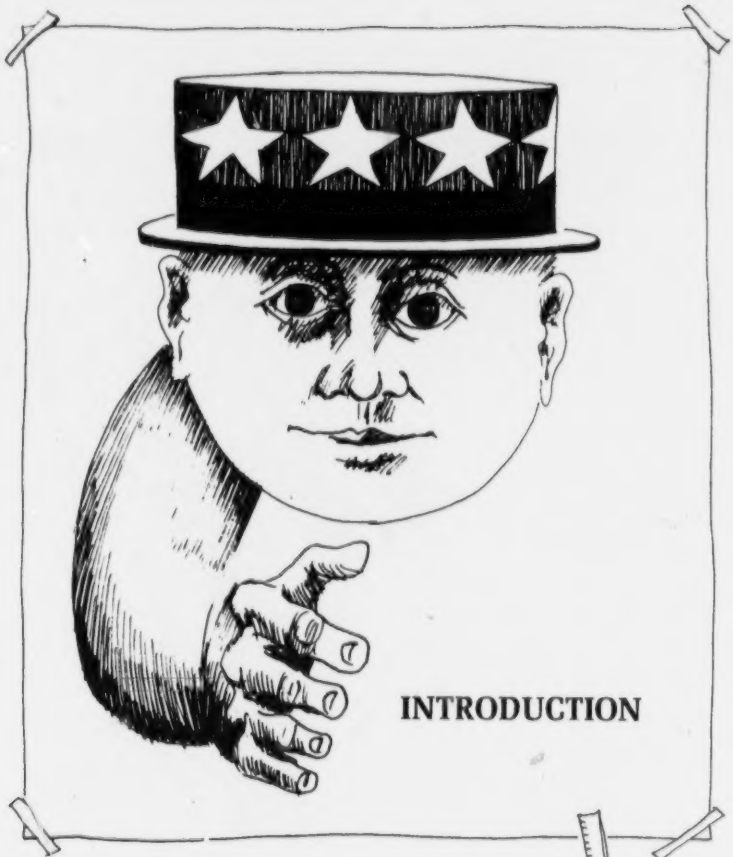
2 Questions and Related Learning Activities: In every chapter there is an *introductory activity* designed to motivate students and introduce them to the content being studied, a *questioning sequence* which requires students to think about information and to apply it in various situations, and one or more group activities a class can carry out as a whole. Each question and activity should help students understand the processes basic to the goals of the chapter.

3 Individual Activities: The individual (and small group) activities suggested in the manual span a range of disciplines: language arts, social studies, science, health and safety, and even music and art. They are designed to reinforce learning and to help students apply important concepts and processes. More activities are included than you might want to use in any given class, so you can choose those most relevant and important to your students.

4 Evaluation: Each chapter contains a short essay exam or objective quiz the teacher can use to determine how well students have learned some of the basic aims of the chapter.

5 References. At the end of each chapter in the manual is a list of references including books, pamphlets, articles, and films.

Note to the teacher: One supplementary resource deserves special mention here. It is a book called *Games That Teach: Classroom Activities on Individual and Community Disaster Preparedness for Elementary and Secondary Schools.* The games in this book are designed to teach civil preparedness concepts in grades 1-12. There are literary games, board games, crossword puzzles, role play/simulation games, card games, and more. The book is available by writing to your State or local civil preparedness office. Include the publication number, MP-59.



INTRODUCTION

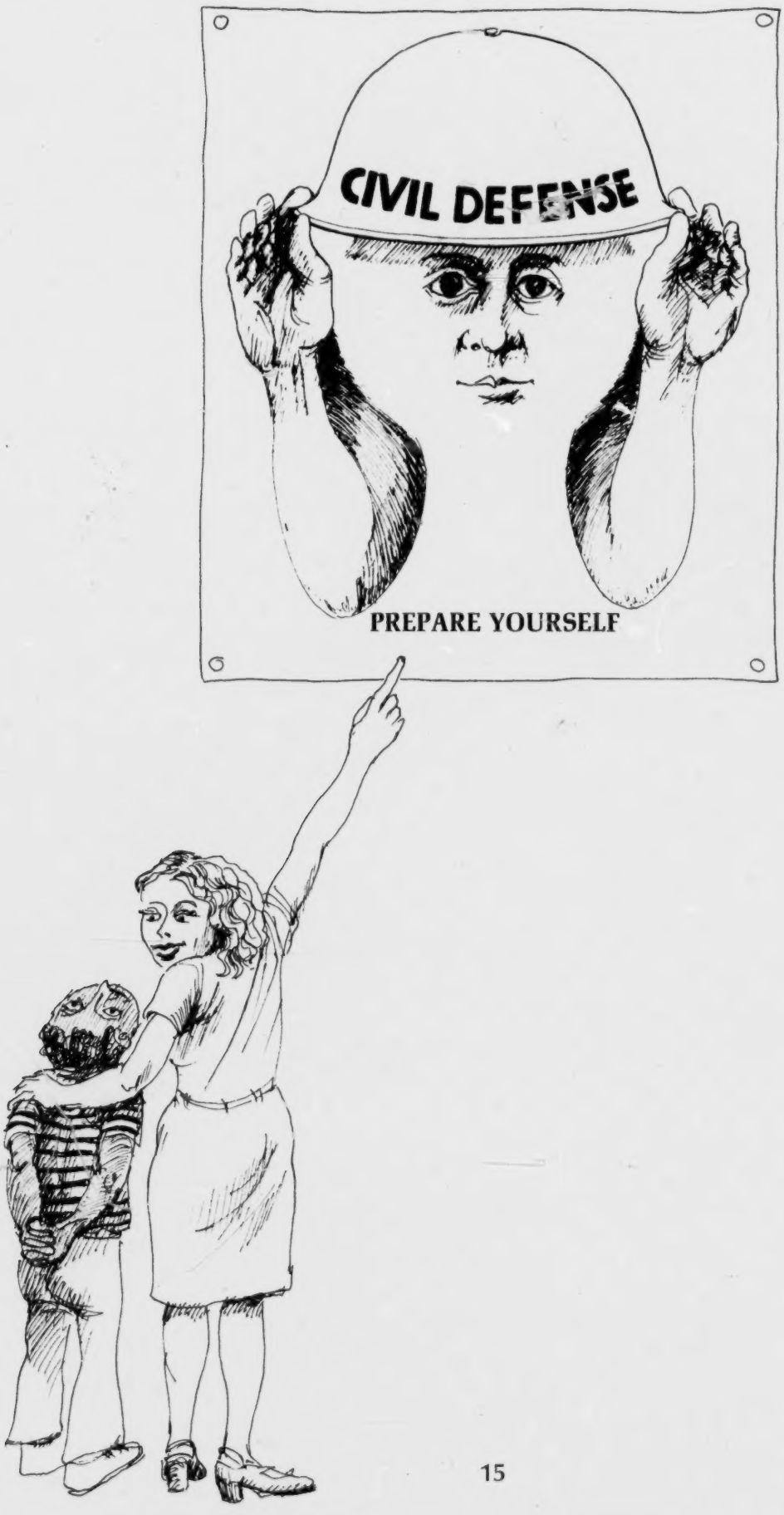
Throughout this text, students will be asked to carry out a series of activities related to the goals of individual chapters. To organize their work, they should keep a personal *survival manual* containing important information, lists, newspaper articles about disasters in their community, and individual projects undertaken during the unit. The following activities might be the first inclusions in the *manual:*

1 Have several students prepare an informal interview form to use in a survey of community attitudes on natural disaster preparedness. The form might contain questions related to age, occupation, and knowledge of the agencies responsible for protecting the community as well as general attitudes. The results of the survey can be discussed by the class as a whole.

2 Individual students might investigate the following questions and produce a civil preparedness fact sheet for the class. (1) Where is the nearest office of DCPA located? What services does it provide? Who is in charge? (2) Historically, what disasters are most likely to strike this community? What general precautions have been taken by local officials? (3) What major disasters have struck this immediate area during the last ten years? (4) How serious were they in terms of loss of life and property? (5) What has local government done to protect the community in the future?

3 Invite an official from a local civil preparedness agency to speak to the class about the organization of agencies within the community and what has been done to prepare for various kinds of disasters.

4 One of the findings of the Office of Emergency Preparedness as reported to the Congress in January 1972 was that disaster preparedness plans and programs in many States and localities need to be improved. Keep this in mind as the class proceeds through the book. Later in the course, conduct a debate on this issue based on the information gathered in other activities. If your community's plans and preparedness need improvement, what can and should be done?


CIVIL DEFENSE
PREPARE YOURSELF

Chapter Goals

At the end of this chapter, "Prepare Yourself," the student should:

1 Know the various warning systems and how to respond properly to each.

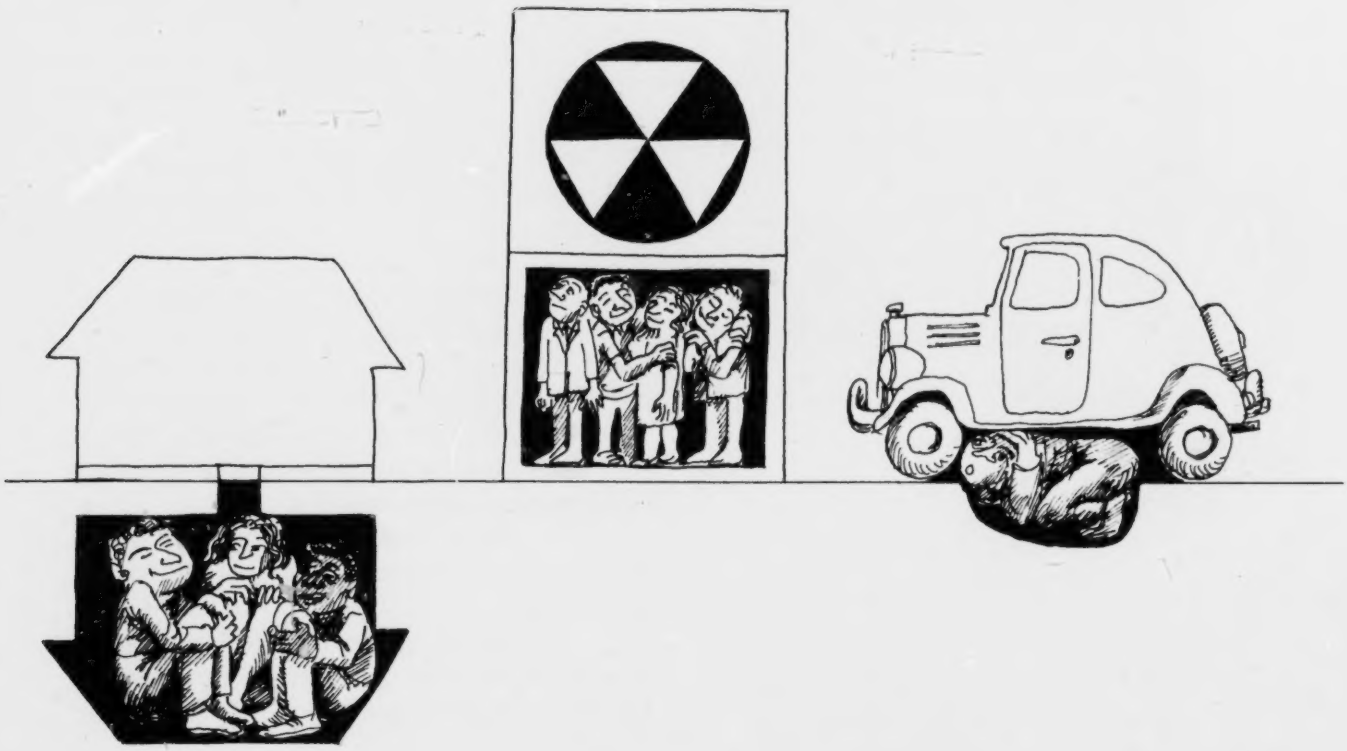
2 Know the locations of public fallout shelters in the immediate community and the circumstances under which he should seek refuge there.

3 Be able to list the basic items in an adequately stocked home shelter.

4 Understand the importance of pre-emergency planning and the division of responsibility within the family.

Questions and Related Learning Activities

1 Introductory Activity: Have each student write responses to the following questions: (1) If you were given one hour to evacuate your home what 10 things would you take? (2) Where would you go? (3) How would you get there? (4) If you and other members of your family were separated, how would you find them? (5) If you were walking home, and you heard a sustained wavering siren sound, what would you do? (6) Where is the nearest public fallout shelter to your home? (7) How long would it take you to get there? (8) Has your family ever discussed preparing for disaster? (9) Have they done anything about it? (10) On a scale of one to ten, how prepared are you to survive a disaster if one should occur? Discuss each of these questions and have the class rate itself and the community in terms of preparedness.



2 Does this community have a warning system? When is it tested? What do the various signals mean? How would you know that the sounding of the siren is not just another test? What is the difference between a steady blast and a wavering tone? How should you react to each?

3 Bring maps of your city or town to class. (Note: These can usually be acquired from local gas stations, drug stores, or other outlets.) Distribute one to each student. Locate: Public fallout shelters, fixed-installation sirens and other warning devices, fire stations, police stations, major and alternative relocation routes.

4 In their *survival manuals,* have the class draw a diagram of their own homes and mark escape routes for each member of their family in the event of fire. Have them also mark those areas of their homes that would give greatest protection in the event of earthquake or high winds.

5 If the water supply suddenly stopped, what would you do? What sources of water are available in your own homes?

6 Using the section called "Practice Sessions" on page 18, have several members of your class role play what they should do if they are at home at the time of various disaster warnings. Assign the parts in terms of the size of each student's family and have the student playing himself take the responsibility for telling each member of the family what to do.

Individual Activities

Have several students estimate the total cost to adequately provision a family of four using the checklists in the chapter. Their report might be copied and passed out to the class.

Arrange a trip to the local civil preparedness office or to a public fallout shelter.

Have students clip pictures of people from magazines, try to guess what the character is like, mix the pictures with those of other people, and then write short, one-act plays about how they think the people would react to one another in a fallout shelter following an attack. Have students role play the same scene.

Have students design a shelter for their own homes and create lists of provisions.

In his personal *survival manual,* have each student complete the outline for family emergency planning included in the chapter.

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

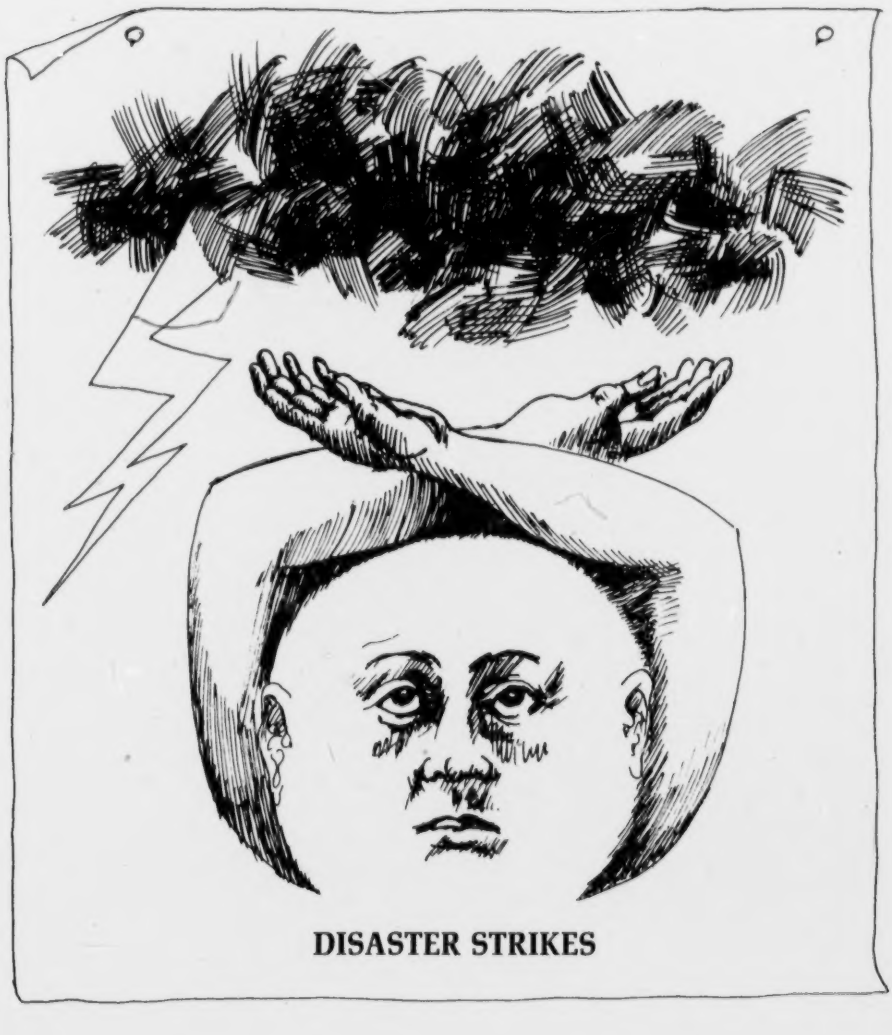
8 _____

9 _____

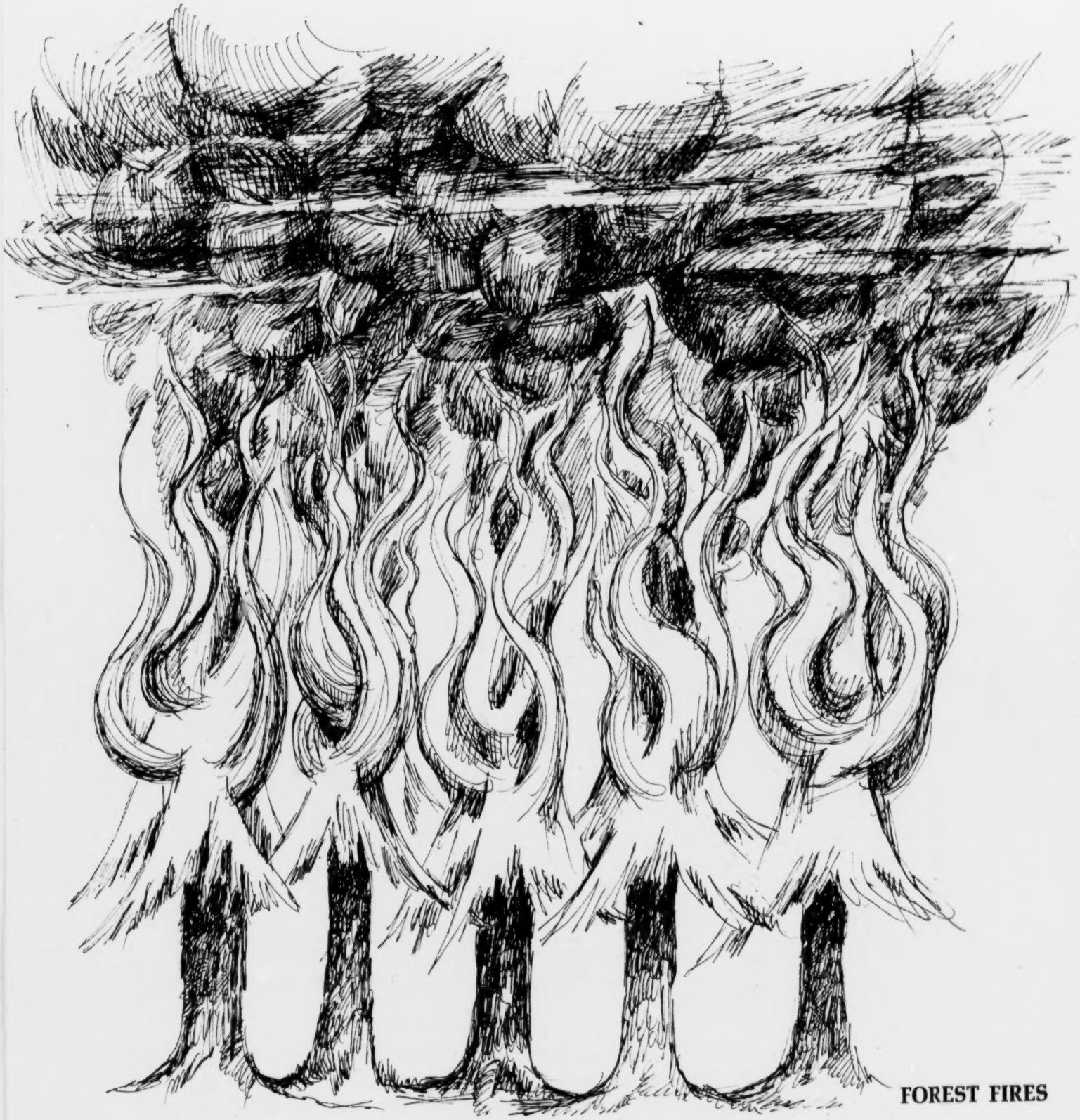
10 _____

Evaluation

A famous American businessman once gave one of his employees a $25,000 bonus for suggesting that the best way to start the day was to list the most important things to be accomplished, and then work on them one by one until they were done. If you were asked to complete a similar list detailing *in order of importance* the 10 most important preparations you should make for yourself and your family before disaster strikes, what would they be?



DISASTER STRIKES



FOREST FIRES

Chapter Goals

At the end of the section on forest fires, students should:

1 Be aware of the serious effects of forest fires on life, the economy, and the ecology.

2 Know the physical characteristics of fires and their patterns of behavior.

3 Be able to define safe areas during fires and to determine logical escape procedures.

4 Know the safety rules that apply to camp fires and campers.

Questions and Related Learning Activities

1 Introductory Activity: Offer the following hypothetical situation to the class:

Assume that the National Park Service has decided to replace Smoky the Bear with a new symbol. Each student is invited to participate in a contest to create a new character symbolizing the fight against forest fires. A catchy but meaningful slogan must accompany the character. Submissions should be in poster form.

Example: A poster showing a large fish leaping out of a stream to spray a stream of water on an unsafe campfire, astonishing the campers around the fire. The printed slogan reads: "It costs more than a fin to put out forest fires."

When everyone has submitted an entry, form a panel of judges from students in other classes. Display the winning posters around the school.

2 Discussing each question as it occurs, read to the class the following interview with Jimmy LeRue. Jimmy LeRue was one of the survivors of a serious forest fire that struck outside Sierra City, California in 1971. The fire took six lives. This transcript has been taken from a television interview shortly after the fire was contained.

Q. When were you first aware of the fire?

A. Me and a couple of other guys was coming back from Beaver Lake down Hanover Trail. First I smelled it, then I seen it. We was going downhill through this brush canyon, dry as tinder all of it. I knew we was in for trouble, 'cause I could see that old fire just racing uphill toward us. It felt like putting your face in a hot oven.

What time of year did the fire probably start? Why did the slope and wind direction lead the group to think they were in trouble? (Note: You may want to have a student draw a topographic map on the board that illustrates the speaker's position in relation to the fire.)

Q. At the time, did you have any idea what started it?

A. Didn't have no time to think about that! The thing was crowning in the trees down the canyon, and racing up the hillside fast. . . .We tried to outrun it but it wasn't no use.

What is "crowning"? How is a fire that is crowning different from other kinds of fires? How fast can a fire race uphill with a strong wind behind it? According to the chapter, what should the group have done instead of trying to outrun the fire? As you understand the situation, what other alternatives did they have? What probably did cause the fire?

Q. What happened then?

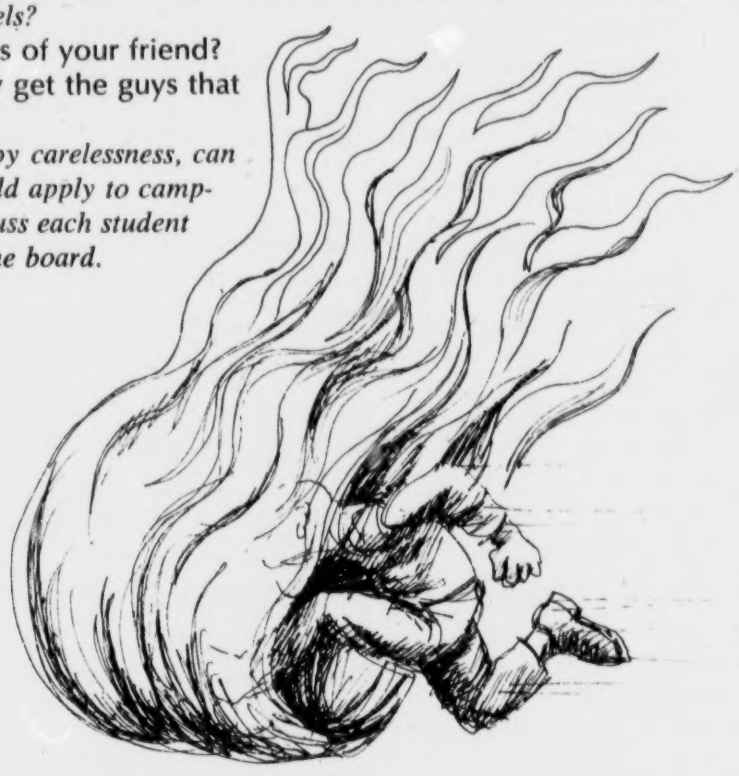
A. We just couldn't outrun it so my friend and me started looking for a place to hole up. We was by the quarry and that old mud pool that ain't quite dried up yet, so we headed for that. Charlie DeWitt said our best chance was to run right through the fire and that's just what he tried to do!

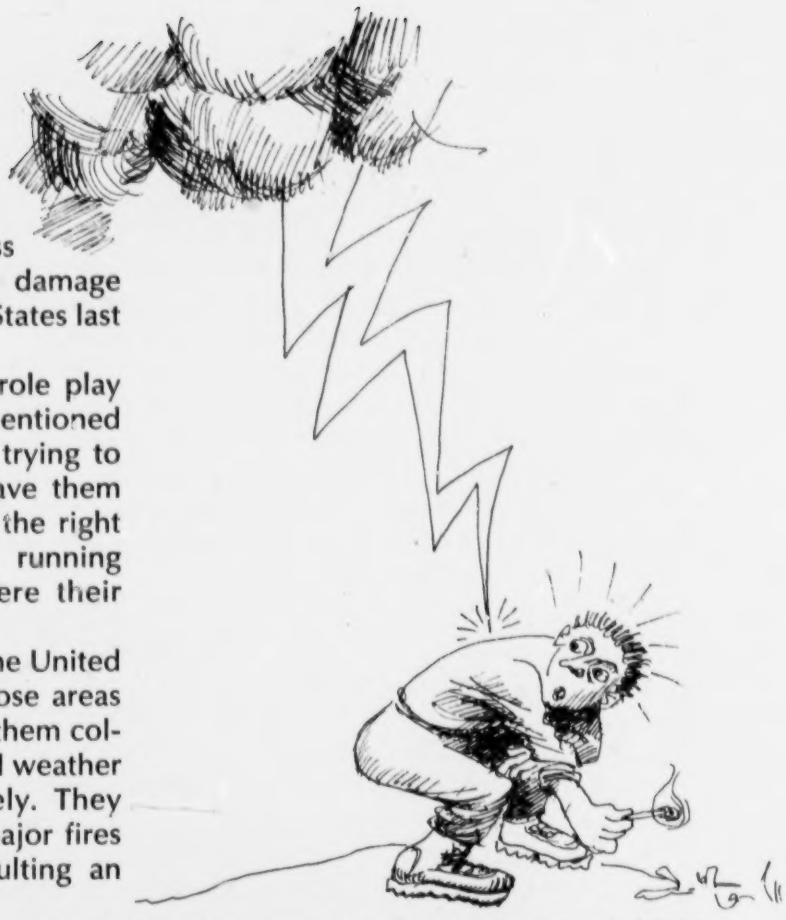
Who probably made the correct decision? Why? What is a safe area during a fire? What is the difference between light and heavy fuels?

Q. Has there been any news of your friend?

A. No. But I sure hope they get the guys that started it.

Assuming that most fires are caused by carelessness, can you think of any safety rules that would apply to campers or others in dry, forest areas? Discuss each student suggestions and put the best ones on the board.





Individual Activities

Have several students do research and report to the class on the economic and ecological damage done by forest fires in the United States last year.

Have several students role play the scene in which the group mentioned in the questioning sequence are trying to decide what to do. Afterward have them discuss whether or not they had the right to prevent Charlie DeWitt from running back through the fire. What were their responsibilities?

On an outline map of the United States, have students shade in those areas most subject to forest fires. Have them color in those areas in which seasonal weather conditions make fires most likely. They might also indicate the sites of major fires during the past year after consulting an encyclopedia year book.

Hold a mock trial, with students taking the roles of judge, prosecutor, defense attorney, and defendant—a camper whose carelessness with a campfire may have caused a major fire which killed one man. The charges are manslaughter and the destruction of public lands. Have the rest of the class be the jury who decides the defendant's guilt or innocence and pronounces sentence.

Evaluation

Have students complete the following sentences:

1 Lightning may cause some fires, but the majority are started by

_____

2 The most important physical difference between a surface fire and a crown fire is _____

3 The three things that keep a fire alive are

_____

4 The elements which influence the spread of a fire are

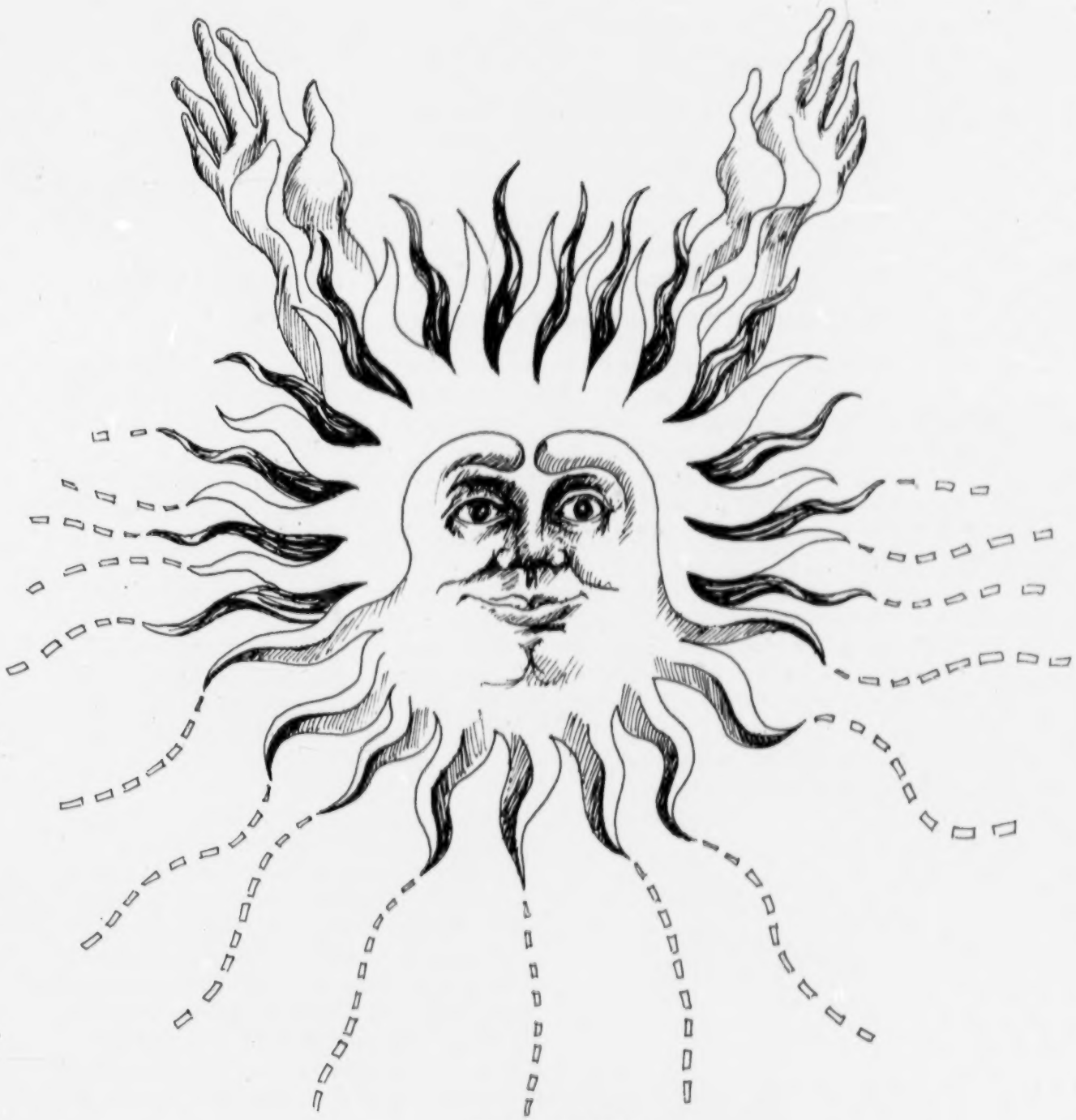
_____

5 Some of the basic safety rules related to campfires are

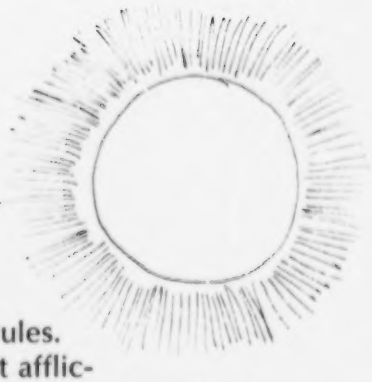
_____

6 The best way to escape a fire that is racing uphill and downwind at you is

_____



HEAT WAVES



Chapter Goals

At the end of the chapter students should:

1 Know the physical characteristics of a heat wave and their effect upon people.

2 Be aware of the various dangers of heat waves.

3 Be able to list and explain the basic heat wave safety rules.

4 Be able to identify the five major types of sun and heat afflictions and to specify their causes, symptoms, and emergency treatment.

Questions and Related Learning Activities

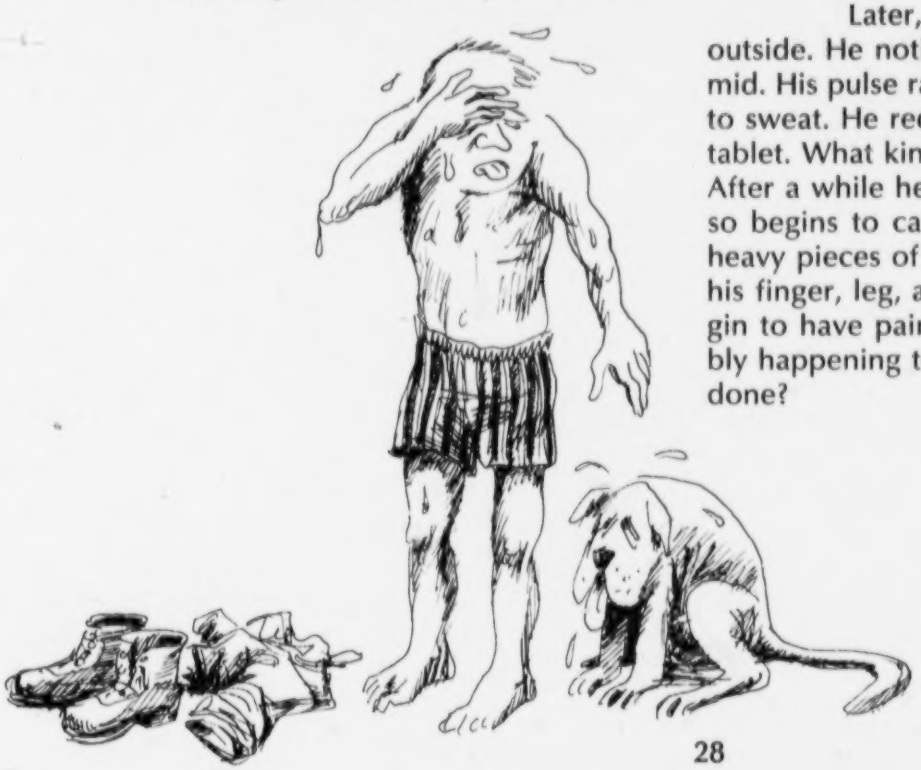
1 Introductory Activity: Ask if anyone knows where the expression "Mad Dogs and Englishmen" originated? Related to the British occupation of India, the full expression is "Only mad dogs and Englishmen go out in the noon day sun." What is implied about high temperatures or heat waves?

If any students have ever experienced a heat wave, discuss its effects. How did the student feel? Did he finally get used to the extreme heat? Did he become ill from too much heat or sun? What were his symptoms? Did he know what type of illness he had?

2 After the class has read the chapter on heat waves, read the following study, discussing the questions as they occur.

Astronauts have just landed on the planet Inferno. Mission control receives this message: "Hello, mission control, our instruments indicate an atmospheric composition and pressure similar to Earth's, but an outside air temperature of 141°F. Should we commence exploring activities immediately or first raise the cabin temperature and adjust? The sun is very bright here; what clothes should we wear?" What answers should be given to these questions?

Later, one of the astronauts steps outside. He notices that the air is very humid. His pulse rate increases and he begins to sweat. He requests permission to take a tablet. What kind of tablet should he take? After a while he thinks he feels better and so begins to carry out and set up various heavy pieces of scientific equipment. Then his finger, leg, and abdominal muscles begin to have painful spasms. What's probably happening to him, and what should be done?



By this time, another astronaut has wandered about a mile from the ship. He has been climbing a steep hill and because of a brisk wind is not overheated. The wind stops. Suddenly he feels weak, nauseated, and begins to sweat heavily. The sweating stops and his temperature rises to 106°F. He sees a gigantic monster in front of him and wants to run back to the ship. You know that the only form of life on Inferno is no larger than a toad. What's probably happening to him? Should he run back to the ship?

When he returns to the ship, he looks ashen or purplish. He is not sweating. What do you think his blood pressure and temperature are? What's he suffering from now? Is a coma likely? Should the cabin temperature be lowered or should it be kept high for his benefit? Does it matter that the nearest doctor is millions of miles away?

Individual Activities

Assign students to examine or collect pictures of seasonal fashions shown in catalogues, magazines, and newspapers. Report on which seasons emphasize light-colored clothes and explain why.

Assign a student to study and report on what changes in uniforms, game strategies, and playing times might be necessary if football were played during baseball season and vice-versa.

Ask five students to write short scripts about people in extremely hot situations. Then have them act out the different causes, signs, and treatments for the five heat illnesses. Let them use whatever props may seem effective. Have the other students guess (with explanation) which affliction is being portrayed.

Ask a student to learn how to take a wrist-pulse count. Have him show the other students how, and also explain normal pulse rate and pulse rate variations with respect to heat illnesses.

Starting with this year and working backwards, assign several students in the class a three-year period to investigate; e.g. 1970-72, 67-69, 64-66. Consulting the *Reader's Guide to Periodical Literature* and other reference and primary sources, each is to research heat waves throughout the United States during that period. The research and short reports should emphasize the location and extent of the heat waves, their intensity and duration, and the number of casualties. Relate the distribution of heat waves to the likelihood of a major heat wave in your area.

Evaluation

True/False Quiz:

Write the words *true* or *false* in front of each statement:

false 1 One need not slow down during a heat wave. The body will adjust automatically.

true 2 If your body shows signs of heat problems, rest and get into a cooler area right away.

false 3 Lightweight, dark-colored clothes are best during a hot spell.

false 4 High-protein foods help the body function better during heat waves.

true 5 When it's hot, drink lots of water.

false 6 The more you sweat, the less salt you lose. Therefore, extra salt is unnecessary during heat waves.

true 7 Thermal shock can be harmful to the body.

true 8 During a heat wave you should try to get out of the heat for a couple of hours each day.

false 9 A slight case of sunburn will help the body maintain normal temperature during a heat wave.

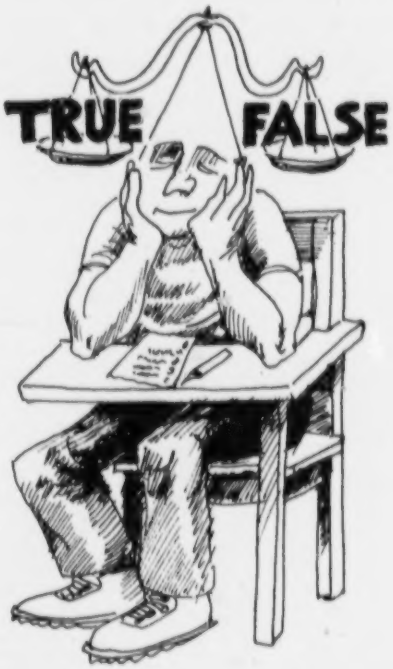
false 10 To treat heat cramps, apply firm pressure on the cramping muscles and give large quantities of water without salt.

false 11 Heat asthenia means loss of life due to excessive heat.

true 12 Normal or subnormal body temperature, thready pulse, and low blood pressure indicate heat exhaustion.

false 13 If sweating stops in cases of suspected heat stroke, the crisis has passed and no further attention is necessary.

true 14 Heat stroke is a critical emergency and requires immediate professional care or hospitalization.



TORNADOES AND THUNDERSTORMS

Chapter Goals

At the end of the unit on tornadoes and thunderstorms students should:

1 Understand the characteristics of thunderstorms, tornadoes, lightning, and flash floods as well as their geographic and seasonal patterns.

2 Know appropriate measures to take in the event of thunderstorms, lightning, tornadoes, and flash floods.

3 Be able to differentiate between appropriate and inappropriate precaution and response.

4 Recognize danger signs and warning signals and interpret them correctly.

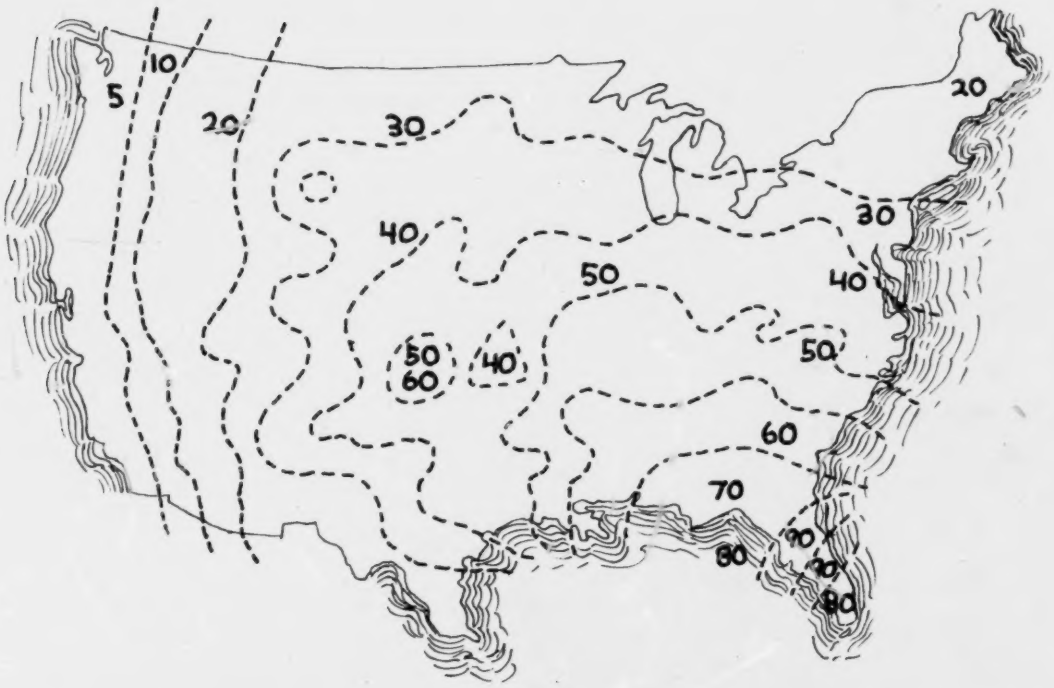
5 Recognize the potential effect on human life and property of thunderstorms, tornadoes, lightning, and flash floods.

Questions and Related Learning Activities

1 Introductory Activity: Ask if any students have seen "The Wizard of Oz" on television or in a theater. Have students describe the storm sequence at the beginning of the film. Talk about the appearance of the clouds, the tornado, and the effect of the storm on the countryside. Elicit related experiences students may have had and list key words on the board. At this point, the students should read the chapter, paying particular attention to the lists of precautions and responses.

2 Copy the following map, draw it on the board, or produce an overhead transparency.

The map represents the geographic distribution of thunderstorms in the United States. The numbers refer to the average number of thunderstorms per year. Ask why some lines in the West are vertical while those in the Midwest, South and East tend to be circular or horizontal. Can anyone guess what the map represents? (Probe for the logic behind student guesses.)

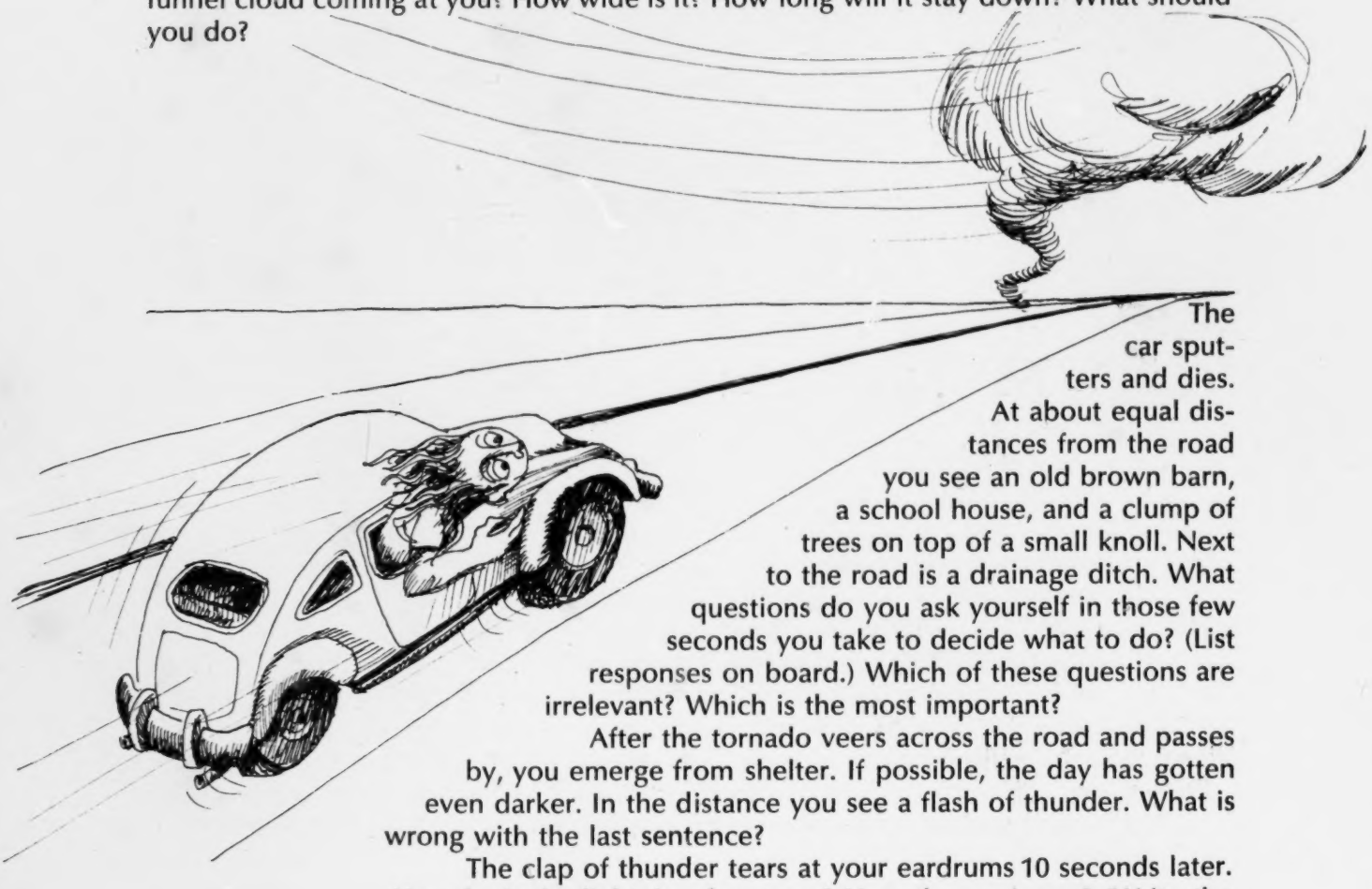


Have students mark the approximate locations of the following cities: New York, Miami, Louisville, St. Louis, Dallas, Oklahoma City, Kansas City, Phoenix, Salt Lake City, and San Francisco. Have the class list the cities in terms of most likely to least likely to have thunderstorms. Have them locate their own community and add it to the list. Where does their community rank? How likely is it that they will travel to other parts of the nation? Suppose they were the kind of person who is neurotically afraid of thunderstorms, but wanted to spend two weeks in Miami on vacation. What time of the year would be best to go? *(Winter)*. What city would you choose to live in the rest of the year?

3 Read the following story to your class. Ask the questions and perform the activities as they occur:

You are driving down a long, straight, and deserted road in Kansas. Dark, ominous clouds appear on the horizon. They seem to weigh heavily on the flat earth. Music on the radio is interrupted with a bulletin. The weather service has announced a tornado warning. It is 20 miles to the next town, and you seem to be driving right into the heart of the storm. What do you do? (List responses on board and discuss the merits of each.)

You decide to keep going, but you notice that your fuel gauge reads empty. You think you can make it, so you drive faster. Suddenly out of the sky ahead a rotating funnel cloud appears. It touches down about a mile ahead of you and seems to be walking a destructive path down the highway right toward your car. How fast is the funnel cloud coming at you? How wide is it? How long will it stay down? What should you do?



The car sputters and dies. At about equal distances from the road you see an old brown barn, a school house, and a clump of trees on top of a small knoll. Next to the road is a drainage ditch. What questions do you ask yourself in those few seconds you take to decide what to do? (List responses on board.) Which of these questions are irrelevant? Which is the most important?

After the tornado veers across the road and passes by, you emerge from shelter. If possible, the day has gotten even darker. In the distance you see a flash of thunder. What is wrong with the last sentence?

The clap of thunder tears at your eardrums 10 seconds later. How far is the lightning from you? How do you know? (Write the formula, lightning + seconds before thunder ÷ 5 = miles away. Have students complete miles if there is the following elapsed time between thunder and lightning: 1 second, 3 seconds, 7 seconds.)

The schoolhouse is struck by a bolt of lightning. It bursts into flames. What is your responsibility to anyone who might be in the schoolhouse? What should you do?

No one is there, so you climb the highest tree on the knoll to watch the thunderstorm. What did you do wrong? What are some of the other things you could have done wrong? What should you have done? (Have students list the do's and don'ts and discuss each.)

A fireman finds your apparently lifeless body under the tree. What should he do? What techniques might he use?

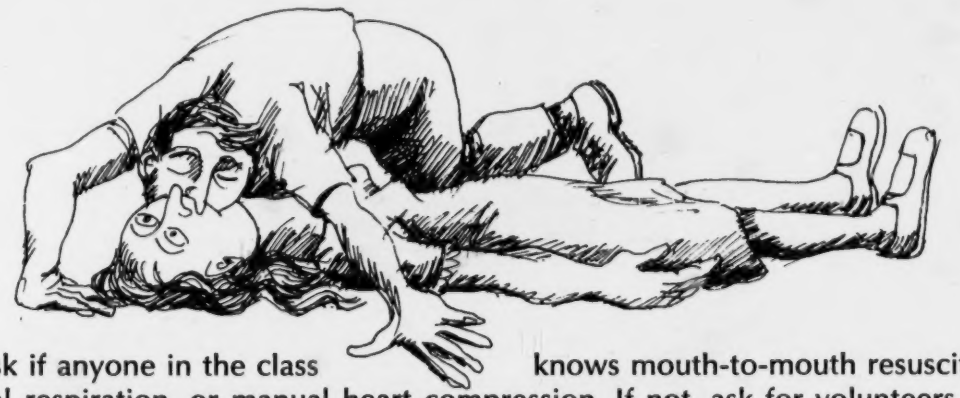
He puts your unconscious body in the drainage ditch so that you will be out of the wind until an ambulance arrives. What did he do wrong?

Coming to, you dimly hear the roar of something rushing at you. Your body reacts and you somehow manage to crawl out of the ditch into the path of the oncoming ambulance. Do you decide it isn't your day? What kind of terrain (other than the flat Kansas plain) would have made a flash flood more likely?

Individual Activities

Have several students write a radio play and produce it using a tape recorder. One method is to cut 10 or 12 pictures out of magazines and have three students each choose a character to role play. Then construct a hypothetical situation based on the incident in the previous questioning sequence. Sound effects can be devised with a little imagination. Other students might write public service announcements related to thunderstorms, lightning, tornadoes, and flash floods. This activity can be a lot of fun if you allow the students a good deal of artistic freedom. Keep the tapes for next year if possible.

Have a committee of three to five students conduct an interview with a local civil preparedness official regarding preparations that have been made to protect the community in event of natural disaster. The committee should make an appointment, have their important questions written out before the interview, and report back to the class. If the class as a whole is reasonably sure that enough has not been done, have the committee write a letter to the editor of the local paper and *send it*.



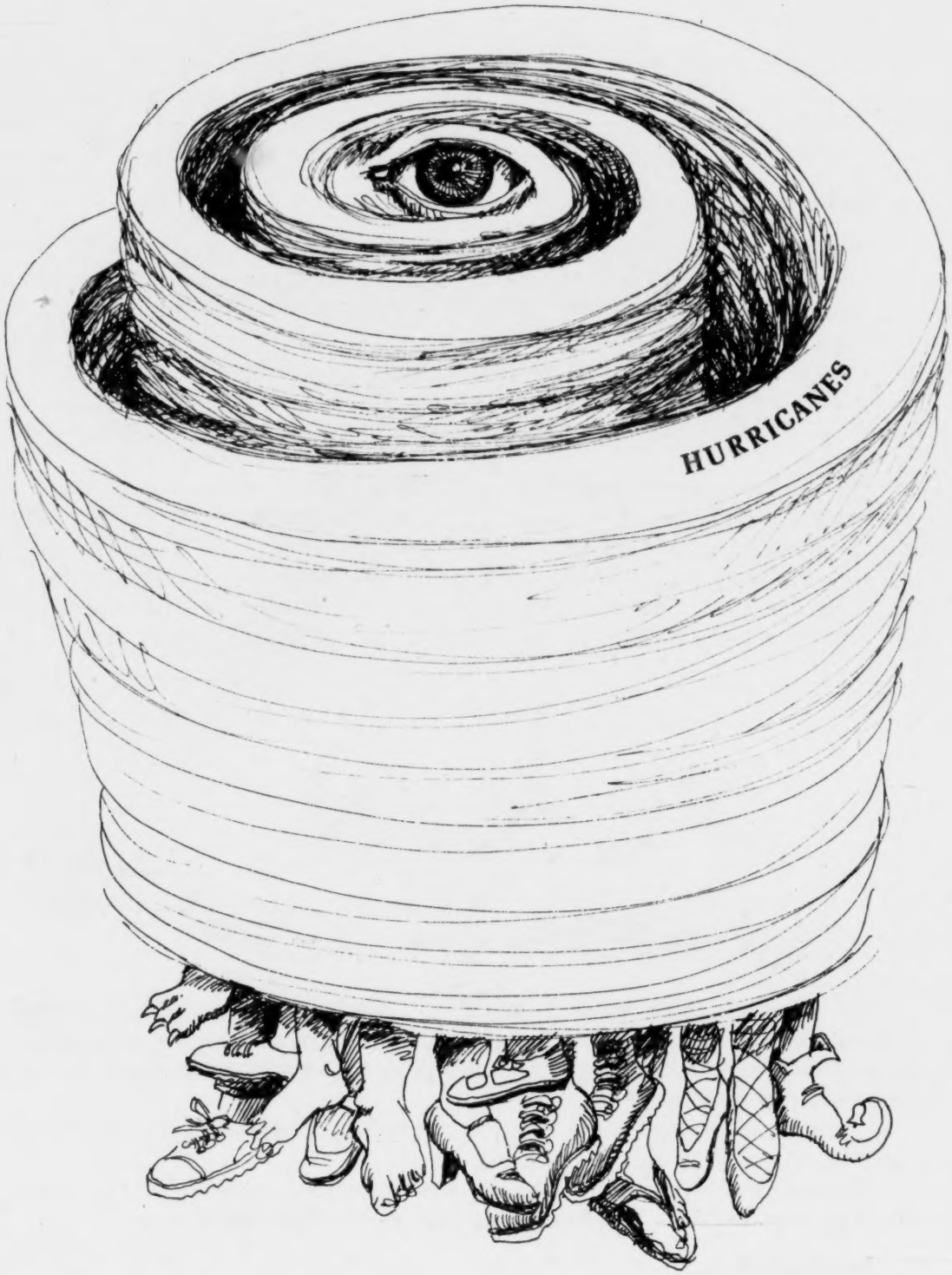
Ask if anyone in the class knows mouth-to-mouth resuscitation, artificial respiration, or manual heart compression. If not, ask for volunteers to learn these life-saving techniques, then discuss or demonstrate in class the basic operations of each.

Have one member of the class report on the physical causes of thunderstorms and the electrical causes of lightning.

Have students interested in music find selections that render the violence of storms; e.g., Mussorgsky's "Night on Bald Mountain." Play them.

Evaluation

Essay Question: A friend is going backpacking in the Sierras for the first time. Thunderstorms are expected. Write a letter in which you advise him about lightning and flash floods. What would you have added if he were going camping in tornado country?


HURRICANES

Chapter Goals

At the end of the unit on hurricanes, the student should:

1 Know the basic characteristics of hurricanes and their geographic and seasonal patterns.

2 Be able to differentiate between appropriate and inappropriate precautions and responses.

3 Know the danger signs and warning signals and how to interpret them correctly.

4 Recognize the potential effect of hurricanes on human life and property.

Questions and Related Learning Activities

1 Introductory Activity: Read the following biographical sketch of Hurricane Camille:

Riddle

Though she was born in the West, Camille grew up in the Caribbean. We hoped that the climate there would influence her to be calmer and more ladylike, but our hopes were dashed. Though she was gentle as a very young child, she matured into a violent and tempestuous adult, desiring only to hurt and destroy those unfortunate enough to be in her way.

Although they say it is bad luck to speak of the dead, Camille was ugly in every way. Astrologically, Camille was a Leo, born between August fourteenth and twenty-second. A good sign, usually, but the stars were crossed when she first saw the light of day. Someone once said of her, "She's like a breath of air, but what breath and what an air!" She didn't fool many people once they knew her, but there were some who were deceived by the calmness of her eye.

I'll say this for Camille: once she started moving she moved fast. One day she'd be in Mississippi. The next you heard of her, she had hit Louisiana, Alabama, and Virginia. She never stayed long in one place.

But wherever she went she made an impression and left some scars, too. None of us were sorry to see her pass away in 1969. Don't weep for Camille. Even though her life was short — eighteen sunsets — she wept enough herself to last a lifetime.

What was Camille?

2 The paragraph says that Camille was born in the West but grew up in the Caribbean. How are hurricanes born? Where do they usually begin? What is their behavior during their early life? At what point does a hurricane reach maturity?

3 Hurricane Camille is called tempestuous. How does this word apply? What is the meaning of the word and why should it have supplied a clue to Camille's real identity?

4 The death toll from Hurricane Camille was more than 200 people. Property damage was over one billion dollars. What characteristics of a hurricane caused this disaster? Of the two, water and wind, which is chiefly responsible for the loss of life? What other dangers exist after a hurricane? (fallen wires, etc.)

5 What is the probable meaning of "...What a breath, what an air?" How strong do the winds of a hurricane get? How fast do they move from one place to another?

6 "Some were deceived by the calmness of her eye." What is the eye of a hurricane and how is it capable of deception? What general precautions should be taken in event of a hurricane? (Refer to the text and list on board.)

7 Camille was born in August and struck Mississippi, Louisiana, Alabama, Virginia, and West Virginia. What months are most likely to spawn hurricanes? What parts of the United States are most likely to be affected?

8 Why are hurricanes named after women? Would it be better if they were named after famous evildoers—Hurricane Attila, Bluebeard, etc.? Develop an alternate list of hurricane names along this line.

Individual Activities

Have a small group of students write and produce a radio play, using a man-in-the-street interview format. The question is, "We now have information that Hurricane Abby is headed in our direction. What do you know about hurricanes? How do you feel about it? What precautions are you taking? Have students who take various parts react differently according to different character types; e.g., the man who doesn't want to think about disaster, the woman who is panic-stricken already, the woman who is planning ways to protect her family.

Have students research newspapers and magazines for the week of Monday, June 19, 1972, and report to the class on the causes and effects of Tropical Storm Agnes. Why is this disaster referred to as one of the most serious in the Nation's history?

Have one or more students research the causes of hurricanes and what has been done to predict them and determine their courses.

If your area is subject to hurricane damage, students can investigate the last one to hit the community in terms of effects on life and property. How much warning was there? How did the community react? How much damage can be attributed to community apathy? What are the community's current plans for emergency action before, during, and after a hurricane?

Evaluation

Have students write a short essay in response to the following:

You are spending the summer with a family on the Gulf Coast. On Monday, you hear the first hurricane watch—Hurricane Zelda poses a threat to your area. The next day a hurricane warning is issued. In order of importance, what questions would you ask yourself? Why do you consider each question important? What factors would influence your decision about what to do?

FLOODS

Chapter Goals

At the end of the section on floods, students should:

1 Be aware of how serious floods are in terms of their effects on life and property.
2 Respond logically to the danger of floods in their own area.
3 Know the basic precautions to take in an area subject to floods.
4 Understand the precautions and procedures one should follow during and after a flood.

Questions and Related Learning Activities

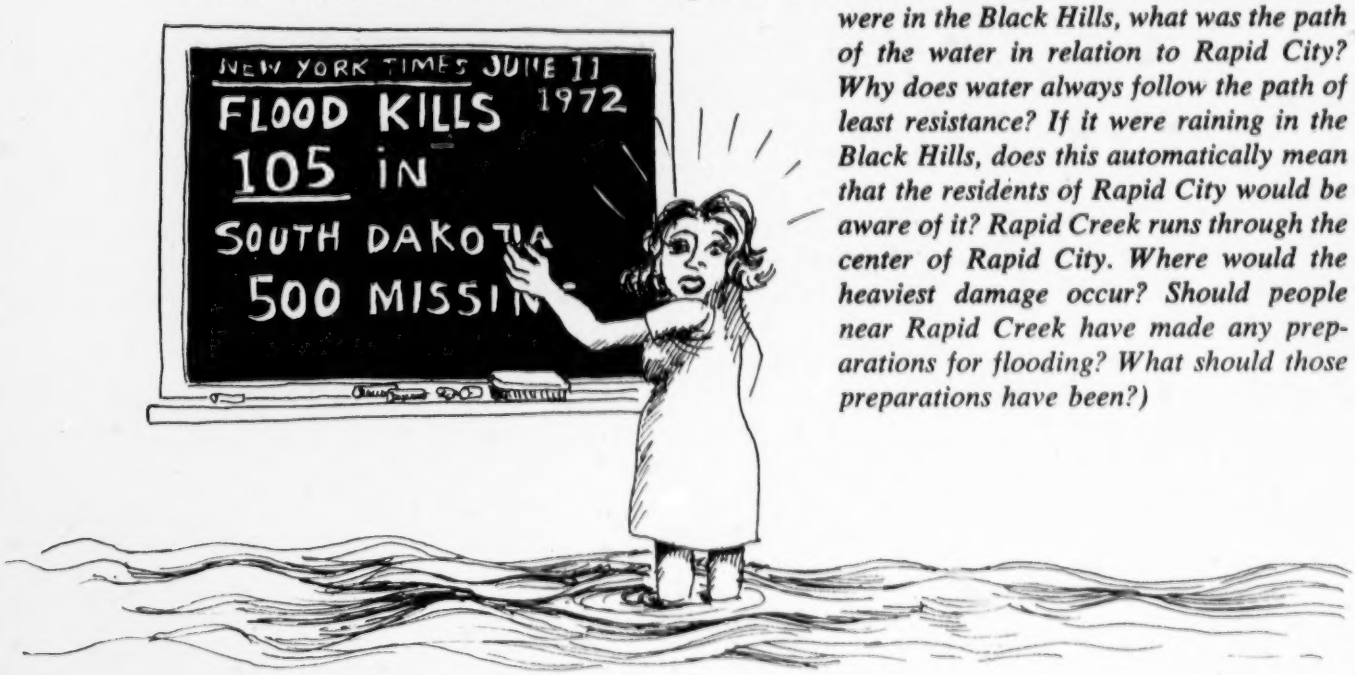
1 Introductory Activity: Write on the board the following headline from the June 11, 1972 edition of the *New York Times:* FLOOD KILLS 105 IN SOUTH DAKOTA . . . 500 MISSING. Ask the following questions. Where did this disaster strike? Does anyone know the final death toll? What steps should have been taken before the flood which might have reduced the final death toll? (Answers might relate to warning systems and flood control.)

Discuss the students' answers to these questions. Chances are that not many will recall the flood occurred in Rapid City and that the final death toll was over 200. What does this suggest about the length of people's memories when it comes to disaster?

2 The following information came from the same *New York Times* article. Read it to the class and discuss the questions included.

"Rapid City, South Dakota, June 10, 1972—Torrential rains and flash floods surged down the eastern slopes of the Black Hills and across this city of 43,000 today, causing at least 105 deaths and wreaking destruction over a wide area." (What warning signals should have alerted residents of Rapid City that a flood was at least a possibility? Is it likely that Rapid City has a flood this serious every year? What were the causes of the flood?)

"Flood waters spawned by a cloudburst that began last night swept away houses, mobile homes, and cars, washed out bridges and knocked down telephone wires." (If the rains were in the Black Hills, what was the path of the water in relation to Rapid City? Why does water always follow the path of least resistance? If it were raining in the Black Hills, does this automatically mean that the residents of Rapid City would be aware of it? Rapid Creek runs through the center of Rapid City. Where would the heaviest damage occur? Should people near Rapid Creek have made any preparations for flooding? What should those preparations have been?)



"Ruptured gas mains and downed power lines touched off explosions and fires across the city. For a time all electric power and gas were shut off in the area." (What caused the explosions and fire? What are some of the more serious secondary effects of flooding? If you lived in the area, what specific precautions would you have taken? Have the class add these to their notebooks. After the flood, what are some of the things you should have done? Is it true to say that the trouble with floods is that first you have too much water and later not enough? Why?)

"Local radio stations broadcast repeated messages throughout the day—'If you find a body do not touch it. Stay in your homes and do not impede emergency vehicle traffic. Don't drink the water. Boats are needed immediately.' (What is the best source of information during a disaster? Why is a local station better than network coverage? Suppose you had a boat: would you volunteer it? What would it be used for? What are your obligations after a disaster such as the one that struck Rapid City?)

Individual Activities

Select several students to research the Rapid City flood and to report to the class on its causes and effects. Have other students research the causes and effects of Tropical Storm Agnes the following week. How were the two disasters similar? How were they different? Some claim that the death toll during the flooding that accompanied Agnes was less than it might have been because of the publicity given to the Rapid City flood the week before. Have students discuss this opinion.

If your community has a history of flooding, have several students report on major floods that have struck your area. On a local map, color in the areas that have been affected and those likely to be affected in the future. Post the map and have students copy it in their personal *survival manuals.*

Have students collaborate in writing a parody of the song "Floating Down the River on a Sunday Afternoon."

If your community is subject to flooding, invite a local government official to class to discuss flood precautions. What has been done to prepare for floods in the area? Is it possible that a disaster as serious as the Rapid City flood could occur in your community? What kind of a warning system is there, and what plans for evacuation have been made?

Have other students contact the committee in your State legislature responsible for flood control. Have information sent on recent flood control bills passed or pending. What effect will this legislation have on your community and other areas of the State?

Have one or two students report on flood stories in Greek mythology; in American or British literature; in poetry.

Evaluation

Write a letter to your local newspaper in which you cite the danger of flooding in your town or a hypothetical community subject to floods. Include in your letter what preparations should be taken before a flood, what citizens should do during a flood, and what they should and should not do after a flood has passed.

WINTER
STORMS
SAFETY
RULES

Chapter Goals

At the end of this unit, the student should:

1 Know the types and characteristics of winter storms.

2 Be aware of the dangers to human life, animal life, and property created by such storms.

3 Be able to define the terms used by the U.S. Weather Service in winter storm forecasts and warnings.

4 Know appropriate and inappropriate responses to winter storms.

5 Understand why different winter storm rules are appropriate when one is at home, on the road, or when livestock are exposed.

Questions and Related Learning Activities

1 Introductory Activity: Read to the class Jack London's classic short story, *To Build a Fire*, and discuss the following: The story concerns a man in Alaska who faces death by freezing. What warning signs should he have recognized indicating that the weather had turned dangerously cold? The dog, who represents instinct, has a better chance of survival than the man, who represents reason. Why? If the man had used his head, what steps could he have taken to save his life? (Draw two columns on the board—one labelled *What he did*, the other, *What he should have done*. After determining the man's mistakes, discuss steps he should have taken to save his life.)

2 After the class has read about winter storms, read the following story, asking the class to respond to the questions as they appear in the story.

You're sitting at home one winter afternoon, looking out across the range. You notice that your two buffaloes are just standing around instead of roaming. Your deer and antelope seem to be fighting. You wonder what's going on. Turning on the

radio, you hear, "Now the weatherman has these discouraging words about the forecast: not only will the skies be cloudy and grey, but heavy snows are expected and the Weather Service has issued a *heavy snow warning.*" You turn off the radio. (Did the radio tell you all you needed to know? What additional information do you need? How should you react to this information?)

You're not worried. Your animals have access to small, tight sheds. (Are these the best kind? What shelter is best for animals during a winter storm? Why is dehydration the major cause of death among farm animals during winter storms?)

You check your house supplies: five loaves of bread, three jars of peanut butter, a portable radio, and a TV set. (What else might you check and why?)

You believe blizzards are the only dangerous winter storms. (What other winter storms are dangerous? Why? What are their characteristics? List student response on board.)

You dress in heavy clothing and start to drive into town to a service station to check on the car you left there to be winterized. Along the way, you run out of gas and have to walk the remaining 2 miles into town. The temperature is 20°F, but feels warm enough as you walk. Suddenly a wind comes up and you begin to feel cold. (What's happening? If the wind is blowing 30 m.p.h., what is the temperature, taking into account the chill factor?) Note: See explanation on p. 54 in the student text.

When you get to the station, the mechanic says your car is all set. (What should he have done to your car? What should he have checked?)

It's dusk now and snow is beginning to fall steadily. The wind picks up strength. You stop at the store for a jar of jelly because you hate plain peanut butter sandwiches. When you start for home you hear something on the car radio about blowing and drifting snow. The visibility is bad but you're sure it won't snow more than a couple of inches during the time it takes to drive home. (What should you have considered before driving to town?)

Ten minutes later, you're stuck in the biggest snowdrift you've ever seen. And you never even saw it. (Why didn't you see it?) Your car's winter storm kit consists of one battery booster cable. What else might you have included? Since you didn't, should you try to dig out the car with your bare hands or walk the 5 miles back to town? What factors would influence your decision? If you stay in the car, should you run the engine and heater with the windows shut to conserve heat? Why not? Should you turn off all the lights to conserve the battery? Why not? Should you sleep to conserve your energy? Why not? What advice would you give someone in this situation?)

Individual Activities

Assign a student to report to the class on the causes, symptoms, and treatment of frostbite and exposure.

Have someone who knows auto mechanics explain the value of winterizing a car and using tire chains in snow and ice. If possible, ask him to demonstrate how to put on and remove chains.

Assign a student to collect a gallery of snow pictures and post them in the classroom. Have students try to identify the kind of storm in each picture. Some students may wish to draw or paint various kinds of storms in their art classes and add them to the gallery.

Assign students to role play three people trapped in an automobile on a deserted road during a blizzard. One is the kind of person who "knows it all," even though he doesn't have the facts; one is terrorstricken, and one tries to get the others to follow his sound advice.

Have students search out stories, poems, and works of nonfiction that involve man's reaction to extreme cold or snow: e.g., some of the stories of Jack London, or books about the Donner party. Particularly effective scenes can be read to the class and discussed.

Individual students can research and report on some of the basic procedures of survival in the cold. Others might report on how the Eskimo has adapted to his environment.

Evaluation

Read the following paragraph and then write a short essay answering the question that follows it:

A friend has borrowed your cabin in North Dakota for the winter. The cabin itself is 20 miles from the nearest town. He arrives tomorrow. You leave today. You write a note giving him essential advice on how he should prepare for a severe blizzard and how to respond to it once it arrives. What do you say? Your answer should cover emergency supplies, the kinds of storms he might expect, and traveling hints. The note might be organized around a series of do's and don'ts.

EARTHQUAKES AND TIDAL WAVES

Chapter Goals

At the end of the section on earthquakes and tidal waves, students should:

1 Know the causes and possible effects of earthquakes and tidal waves.

2 Know the characteristics of safe and unsafe physical locations during and after an earthquake.

3 Be able to carry out standard safety precautions in the event of earthquakes and tidal waves.

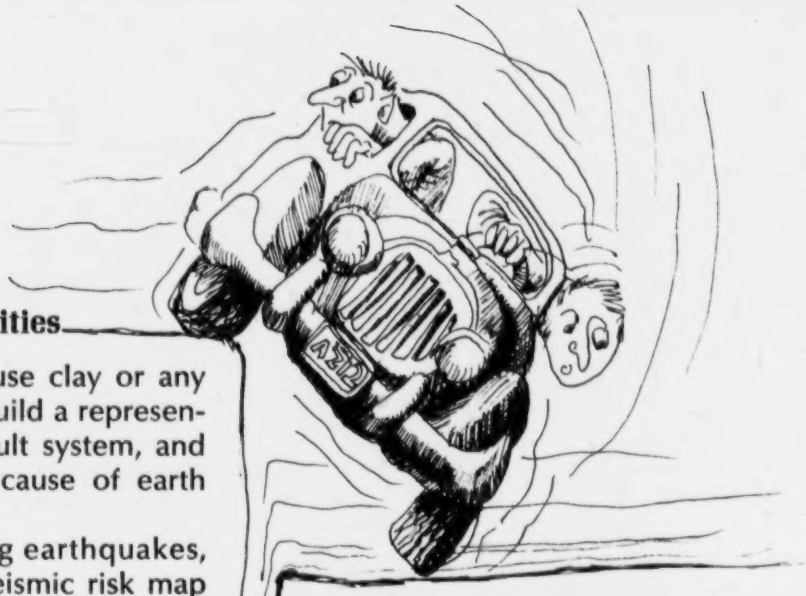
Questions and Related Learning Activities

Introductory Activity: What follows are the stories of San Franciscans who did not survive the 1906 San Francisco earthquake.
See if you can guess why.

1 Agnes Day (age 62): When the 'quake struck early in the morning, she ran to her large glass window to look out. Although the house remained standing, she was found dead in her bedroom. What probably happened to Agnes Day? (Killed by shattering glass, but answers may vary.) What should she have done to protect herself? Why didn't she do it?

2 Peter McDonnell (age 21) was a policeman who walked the midnight to 8 shift in downtown San Francisco. When the 'quake struck, he was standing on the corner of Market and Kearney streets admiring the fancy masonry on the new Flat Iron building, a skyscraper six stories high. Why was this location dangerous? What probably happened to Peter McDonnell?

3 Leland Sinclair (age 42). After the 'quake had subsided, he lit a candle and went downstairs to see if there was any damage to the gas pipes. What was his mistake? If an earthquake occurred now, would you rather be in a tall building or on the street under it? Why? If you were in a modern house after a 'quake, what would you do to check damage? (List responses on board and have students add to their *survival manuals.*



Individual Activities

Have a student use clay or any other suitable material to build a representation of an earthquake fault system, and to demonstrate the basic cause of earth tremors to the class.

After researching earthquakes, students can construct a seismic risk map of the United States or the world, identifying your community and estimating its chance of experiencing a major 'quake.

Other students might carry out independent investigations which result in answers to the following questions: What has science done to predict earthquakes? Where have major earthquakes occurred in the United States during the past 100 years? What damage did they do? And how likely is it that the same areas will be struck again in the near future? What evidence is there that the moon has 'quakes, too? What does this suggest about both the origin of the moon and its geologic makeup? What is the Richter Scale? How does it work? Has research been done in earthquake prevention?

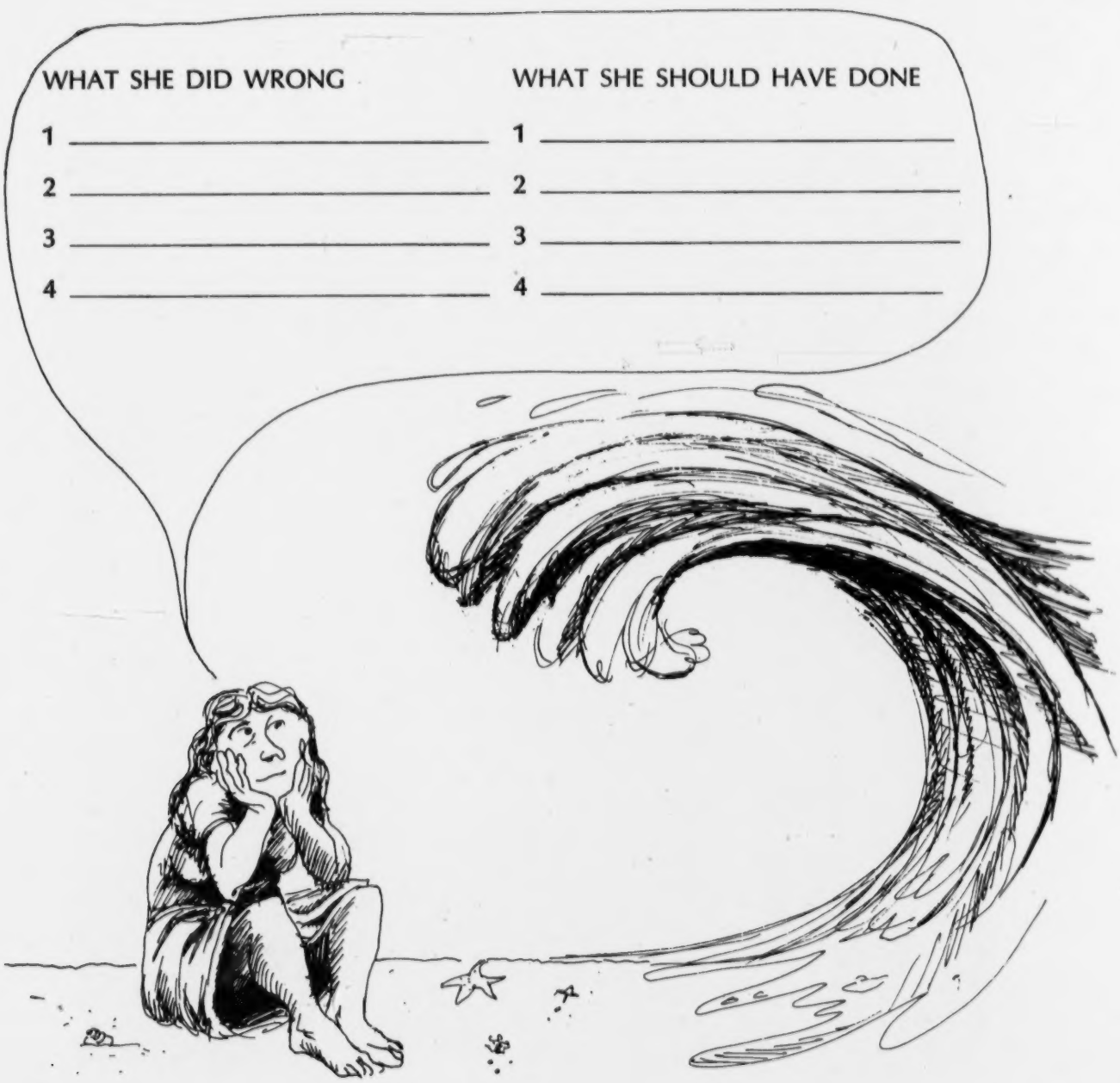
Have students write original letters from imaginary survivors of a California earthquake sometime in the future. What was the effect of the 'quake on people, freeway overpasses, skyscrapers, bridges, and small boats? How did people react? What steps did government take to lessen the disaster?

Have one or more students investigate the building code and zoning ordinances in your community. How do they reflect the risk of earthquake? How do they differ from or imitate codes and ordinances in high risk areas?

Evaluation

Read the following paragraph carefully. Then in the space provided list all the things that Ollie Tremble did wrong, and all the things she should have done.

When the 'quake hit Santa Rosa, Ollie Tremble was asleep in her small apartment downtown. Jumping out of bed, she stood at the window and watched the ground heave. Ollie was so frightened, she ran down the stairs and dashed out of the building. The strong shocks had subsided by now, so she decided to take a walk downtown to calm her nerves. In some places the streets were ankle deep in broken glass. She looked into the damaged store windows as she passed. When she returned home, she found that the electricity was out. Taking a candle, she went into the basement to check for gas leaks. Finding none, she decided to get out of town. She drove to the sea shore. Sitting on the beach, she thought, would make her feel better.


WHAT SHE DID WRONG
1
2
3
4
WHAT SHE SHOULD HAVE DONE
1
2
3
4

TECHNOLOGICAL FAILURES AND EMERGENCIES

Chapter Goals

At the end of this section on technological failures, the student should:

1 Know basic fire safety rules and how to apply them in various situations.

2 Understand that technology and science bring both benefits and danger.

3 Be aware of the potential for technological failure and industrial accidents in the community and the Nation.

4 Accept the responsibility of taking community action to lessen the danger and likelihood of fire, technological failure, and industrial accidents.

Questions and Related Learning Activities

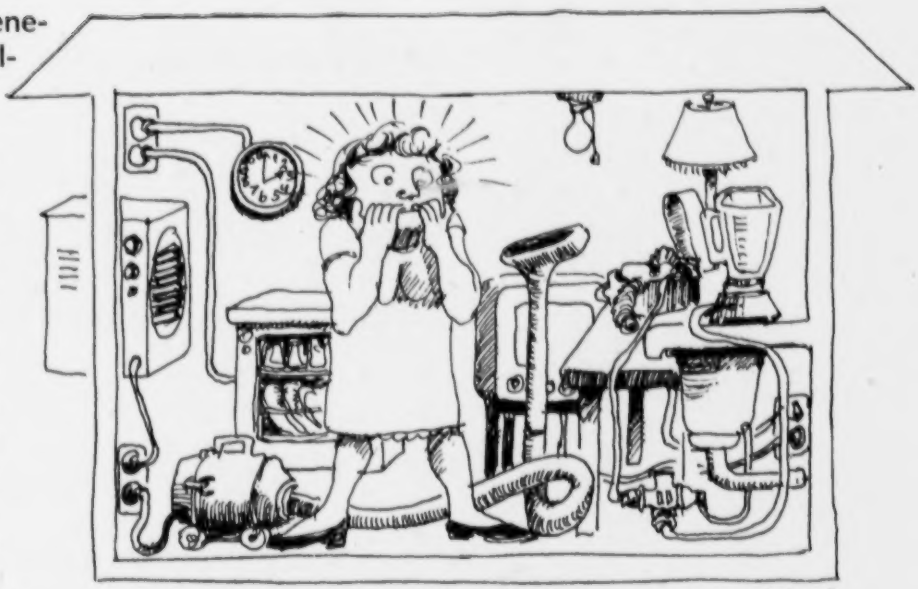
1 Introductory Activity: Write the following sentences on the board:

"Science and technology were created to serve man. And yet they have produced war, pollution, and the exploitation of the earth's natural resources. Man's brain should not help destroy him. We would all be better off if science and technology were never created or were now abolished forever."

Have students write one-paragraph predictions of what would happen if this suggestion were carried out. After 4 or 5 minutes, have students compare and discuss their responses to the suggestion. On the board, write two headings: GOOD EFFECTS and BAD EFFECTS. Have students supply examples. Discuss how our lives would be better if the bad effects of science and technology were eliminated and worse if the good effects did not exist.

2 Look around the room. What fire hazards exist? What things in the room have a potential for creating fire? (electrical short, matches, etc.). What are the three necessary conditions for fire? (fuel, air, heat). Is there any one better way of putting out a fire, or does the best way depend on the type of fire? What is the best way of extinguishing a fire fueled by wood? by grease? by electricity? Can you think of any obvious fire hazards in your own homes? What could you do this evening to lessen the hazard?

3 One of the benefits of technology is electricity. How many ways does electricity serve you from the time you wake up until you go to bed at night? How is electricity produced? What precautions should you take in case of a blackout? (Write suggestions on the board.) Which area would be most affected by a blackout—a small town or a large city? Why? In a large city, what season is apt to require the greatest use of electricity, summer or winter? Why?



4 What kind of heavy industry exists in our community? (list on board). Given this kind of industry, what kinds of accidents are possible? What can be done to protect the community from these accidents? Have we had any major industrial or technological accidents in the past year? What were their effects? How can we keep them from happening again?

Individual Activities

Have students write the diary entry of the last survivor of a technological accident which has doomed all life on earth. You may want to collect the best of these and put them out as a class anthology.

Have a committee of students compile an anecdotal, chronological history of major technological accidents and mishaps from 1970 to the present. This can be done as a time line which includes the date the accident occurred, the effects of the accident on life and property, the cause of the accident, and, of course, where it happened.

Assign five students the following roles to act out: (1) The president of a large chemical company whose chief product is an insecticide; (2) the leader of a community ecology group concerned with the chances of an industrial accident at the plant and the effect of the chemical on the food chain; (3) the mayor, concerned with the effect of the plant closing on the economy of the town, as well as public opinion; (4) a farmer who sees both sides of the issue; (5) a newspaper reporter covering the meeting in the mayor's office.

The scene is the mayor's office. Each participant is to state his case and argue for his plan. At the end, the class should vote on the best solution to the problem.

Have students draw a schematic sketch of their own homes, identifying the major potential fire hazards and logical escape routes. This drawing can be added to their personal *survival manuals.*

Invite a member of the local fire department to speak to the class on fire safety rules, or someone from an ecology action group to talk about their priorities, or someone from the public relations department of the electric company or another major utility to discuss what the company is doing to protect the public from blackouts or industrial accidents.

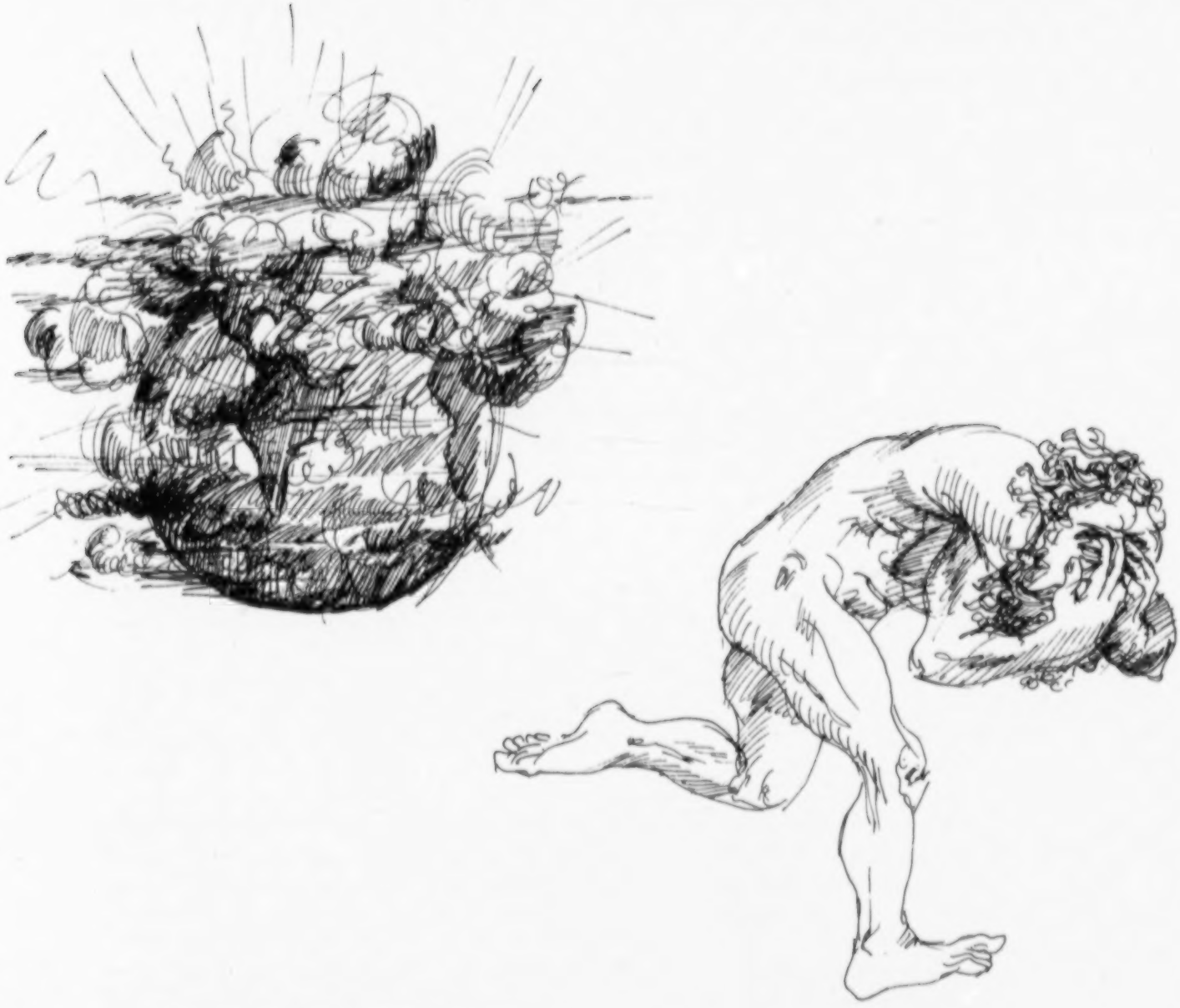
Evaluation

You are running for public office in your community. During your campaign, the following events occur: (Write short answers telling how you would respond to each.)

1 At a luncheon given by the League of Concerned Voters, there is a grease fire in the kitchen. You are just passing through on your way to speak. What do you do? The cook is about to throw a kettle of soup on the fire; what do you say?

2 After the fire has been extinguished, someone asks you what plans you have for making the community safe from technological accidents. How do you respond?

3 Your opponent says that your plan would wreck the economy of the community. How do you counter this argument?



ENVIRONMENTAL POLLUTION

Chapter Goals

At the end of this section on pollution, the student should:

1. Know the serious effect of all types of pollution on both human health and the physical environment.
2. Recognize that pollution comes in various forms, each of which has its own causes and requires its own solutions.
3. Understand that the essential cause of pollution is technology and that each of us bears some responsibility.
4. Know some basic precautions to protect himself and the environment from pollution.
5. Be aware of the political and economic ways in which citizens can influence environmental reform.
6. Follow some basic guidelines to reduce his own share of pollution.

Questions and Related Learning Activities

1. Introductory Activity: Bring a white cloth or handkerchief to class; use it to wipe the outside of the window. What happened? If you could analyze the smudge on the handkerchief, what would you probably find besides dust? Have students think of all the sources of pollution they experienced on their way to school today. List these sources on the board. What do they all have in common? How are they different?
2. Suppose intelligence were measured in terms of how well an organism were able to live in harmony with his environment, rather than by rational thought and language. Who would be more intelligent, man or animals? Is this a fair measurement? Why? Why not?
3. What combination of weather and pollution could produce a major disaster in Los Angeles, New York, or Pittsburgh? What might happen? Who would be affected first?
4. Would you rather live in the most highly industrialized country on earth or in the most pollution free? Why? Discuss the advantages and disadvantages of industrialization.

5 List on the board the most serious forms of pollution: Air, water (including the ocean), noise, solid waste, thermal, and visual. Of these, which do you consider the most dangerous to life on earth? Why? What are some of the most important causes of each form of pollution? If you were a member of Congress, what bills would you propose to solve each of these pollution problems? If your bills became law, what effect would they have on the economy and on day-to-day life? Would your solutions be effective? Would they create new problems? Discuss.

6 Solutions are complex when viewed nationally, but what can each of us do personally day-by-day to reduce the problems? *Your Chance to Live* contains a list of things each of us as polluters can do to help. Turn each of the suggestions into a yes or no question; e.g., "Do you refuse to buy over-packaged products?" Tally the class answers. How does the class measure up? Is the effort needed to change this score worth the trouble?

Individual Activities

Have some students search through old photograph albums and newspapers for pictures of the community as it existed 50 or more years ago. Ask some of them to take photographs of the same scenes as they appear today in order to juxtapose the two on the bulletin board.

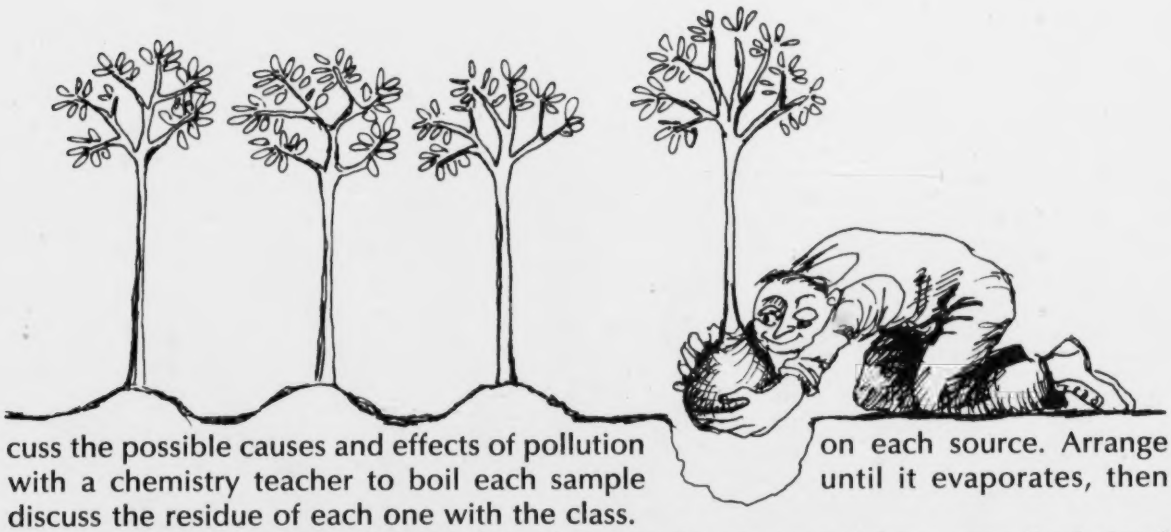
Students can conduct a pollution survey of the community, attempting to identify and evaluate the effects of pollution on air, water, and the quality of life.

Others can conduct an investigation of what regional government is doing to reduce the level of pollution in the community.

Act on suggestions contained in the student text; e.g., form a neighborhood collection system for old newspapers; form a car pool; locate and use existing aluminum scrap or glass reclamation centers or establish one; start an organic garden and a compost pile; write legislators to find out their position on ecological issues.

Have some students invite a speaker from one of the many ecology groups now formed. By calling the public relations department of various major industries, they can also arrange for a speaker who represents the other side.

Collect samples of water from a variety of sources; e.g., the local drinking supply, ponds, streams, lakes, puddles, and gutters. After placing the water in clear jars numbered for identification, ask students to guess the source of each sample. Dis-



cuss the possible causes and effects of pollution on each source. Arrange with a chemistry teacher to boil each sample until it evaporates, then discuss the residue of each one with the class.

Have students interested in photography create a "photo essay" of visual pollution in the environment; e.g., litter along a country road, garish neon signs, a run-down industrial section, etc.

Tear a clean, white cloth in two. Hang one piece near a freeway or busy intersection and put the other away in a drawer. In a couple of weeks, compare the two pieces of cloth and draw some conclusions about the quality of air.

Using a portable tape recorder, tape some sources of noise pollution in the community: traffic noises, construction, the airport, a factory. Play this tape in class and discuss the effect of such sounds on the people who have to live close to them day after day. Assign someone to find out what your community is doing about noise pollution.

Have a "recycling day" in which the class learns to separate clear and colored glass and remove neck rings from bottles with a can opener; learns to separate tin, aluminum, and bi-metal, remove lids and flatten cans; learns how to bind newspapers adequately; takes a trip to the local recycling center. Discuss why this sorting process is necessary.

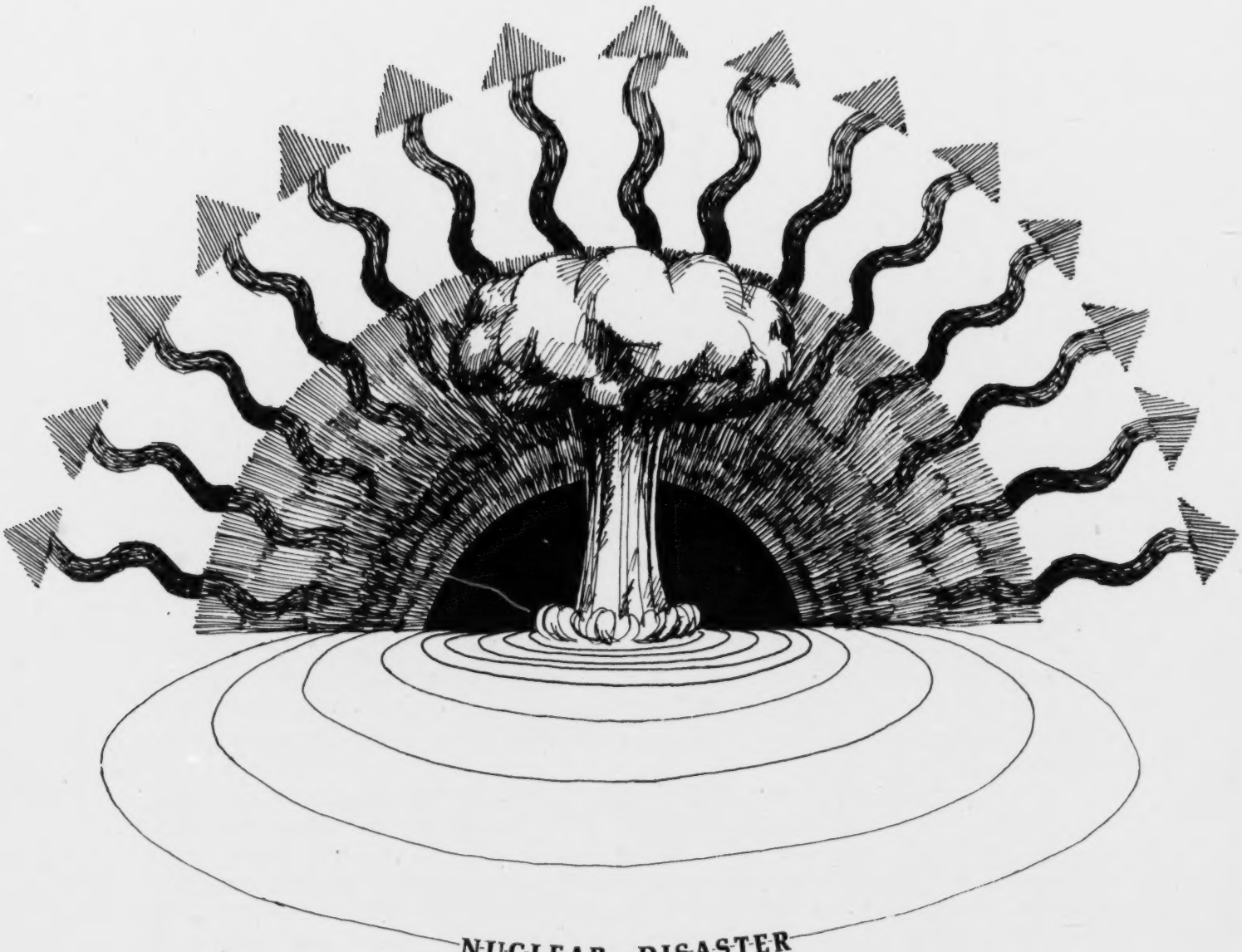
Have students role play two people meeting in the smog, someone swimming in Lake Erie, someone trying to study in his home near a major airport, the president of a company responsible for polluting a beach, a politician who is trying to get the support of both an ecology group and industry, a farm worker who has been poisoned by insecticide, a scientist who is afraid for the future of the world. Put these characters together in various situations; e.g., the swimmer, the company president, and the politician happen to sit together on a plane.

Have students write letters to national conservation groups and ask for information on their programs.

Evaluation

Have students write a response to the following:

Civilization is the result of Man's attempts to subdue Nature. Our industrial progress and economic well-being depend upon our ability to create power from oil, automobiles from iron, and chemicals from the earth. If it were not for insecticides, we would not have our current high crop yield. If it were not for our great auto plants we would not be the world's most mobile people. And if it were not for technology we would not have the consumer goods that make our life worth living. Sure I'm for ecology. We all are, but I'm even more for progress.



NUCLEAR—DISASTER

Chapter Goals

At the end of the section on nuclear disaster, the student should:

1 Be aware of how technology has changed warfare in the 20th Century.

2 Know the characteristics of a nuclear explosion and the radioactive fallout associated with it.

3 Know the important steps in preparing for and living through a nuclear disaster.

4 Be able to locate the nearest public fallout shelter.

5 Recognize his responsibilities to himself, his family, and others in the event of nuclear disaster.

Questions and Related Learning Activities

1 Introductory Activity: Six to ten students are to role play a nuclear disarmament meeting between two large nations, A and B. Both countries possess missiles and nuclear weapons. Both want to reduce tension and the risk of war but are afraid that any concession they make will lead the other to become the aggressor. They share a common border and have a history of war between them. Neither side completely trusts the other. What happens? After the scene has been played, discuss the problems in reaching an agreement. You might follow up this activity by having students report on international conferences aimed at assuring a more peaceful world.

2 Discuss the history of warfare. Is it true that all is fair in love and war? Discuss some of the ways war has changed since the days of spear and sword. What was the first war in the 20th Century to affect the total civilian population? Why? Did modern technology make total war possible or inevitable? Why?

3 A German military philosopher of the 19th Century said that war was an extension of diplomacy by other means. What do you think he meant? Can the world afford to live by this principle today?

4 If a 5-megaton bomb exploded at ground level 50 miles away, what would be the greatest danger to our community? What is radioactive fallout? Why is it dangerous? How can you protect yourself from fallout? How do the other principles of survival such as taking shelter, acting on warning signals, and preparing emergency supplies apply to a nuclear disaster? What are the differences?

5 What are some of the potentially good uses of atomic energy and radiation? If you were to predict the effect of atomic energy on mankind during the next 100 years, what would your prediction be? Why?

6 Nuclear attack on the United States is not a pleasant thing to think about, but, if it should occur, survival may depend on how well we are prepared to cope with it. If you were at home and heard the Attack Warning Signal, what would you do? Where would you go? What would you take? (List on board and have students add to their personal *survival manuals*.)

Individual Activities

Have students create a map of the community marked to show the location of public fallout shelters. Copy this map and have the class add it to their personal *survival manuals*.

Have students investigate and report on the discoveries of the following scientists: William Roentgen, Henri Bequerel, Eve Curie, Otto Hahn, Fritz Strassman, and Enrico Fermi. The students might construct a time line of man's use of atomic energy.

If a nuclear power plant is located nearby, arrange a field trip for the class, or for several students who can report to the class on its operation and precautions taken to protect the community from accidents.

Ask a student interested in meteorology to chart the prevailing wind patterns across the United States. Because these vary with the season, have him predict fallout patterns during the spring, summer, fall, and winter.

Have a student develop a bibliography of books available in your school library that deal with nuclear war, atomic energy, or atomic science and scientists. Assign readings from this list.

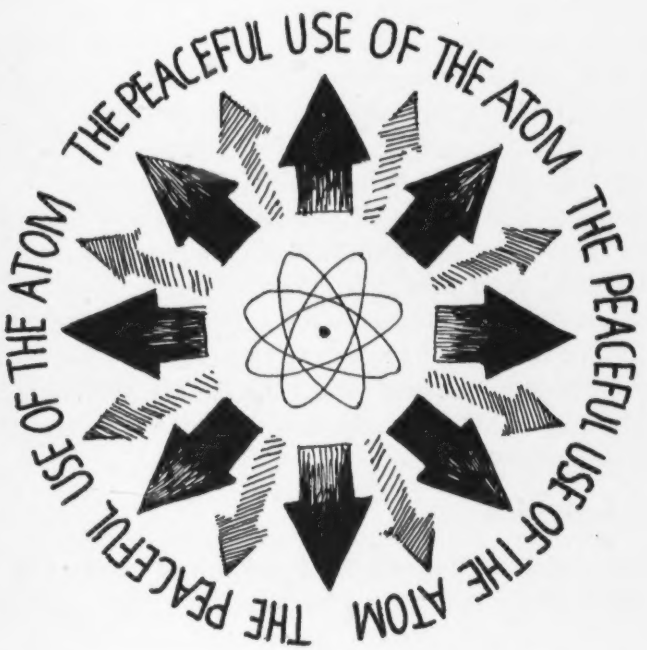
Using the theme of man and the atom, students can draw cartoons, construct collages, and paint posters.

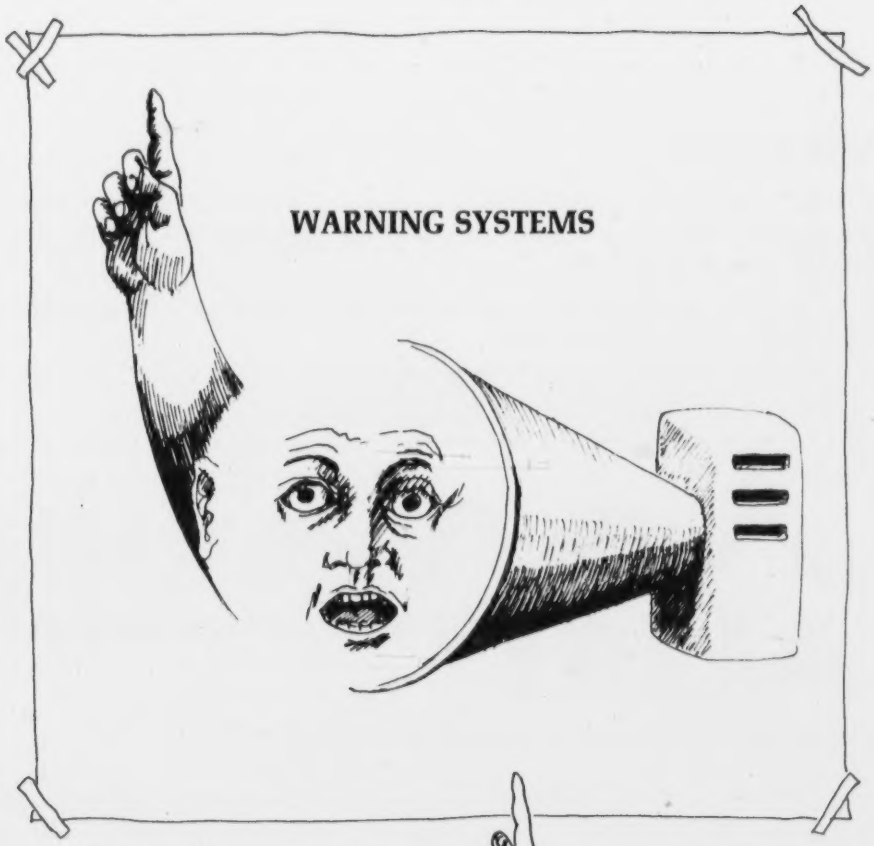
Have several groups of students role play a scene in a shelter. They are going to have to live together for two weeks. They have adequate supplies but are going to have to work out a system for survival. Give each group 5 minutes to do so. Afterward, you might discuss the plans that were created, in terms of their practicality. Were the plans imposed by one member of the group or were they arrived at democratically?

Evaluation

Write your response to the following question:

If an international crisis should occur, making war a possibility, what steps would you take to prepare for your own and your family's survival?




WARNING SYSTEMS

Chapter Goals

At the end of the chapter on warning systems, the student should:

1 Recognize the importance of warning systems in safeguarding the community from disaster.

2 Understand the function of the National Warning System and know how it operates in the community.

3 Know how to respond to various warning signals, including the *Attack Warning Signal* and the *Attention* or *Alert Signal.*

4 Be able to differentiate rumor from fact and know how to substantiate information.

Questions and Related Learning Activities

1 Introductory Activity: The chapter points out that every society depends on a system of warnings for survival. Have students think of all the ways in which they have been warned within the past several days; e.g., the warning notices on medicines, cigarette packages, stop signs, car horns, weather bulletins on the radio, fire alarms. One of the most important functions of the sense organs of the body is to act as a warning system. The eyes see danger approaching. The nervous system feels pain. The nose smells smoke, etc. Compare the sense organs of the body to the nationwide warning system. How are radar and weather satellites like eyes? How is the Nation's communications network like a nervous system? If you were on a baseball field and someone yelled "heads up!" how would you react? If you were to hear a 3- to 5-minute *wavering* tone on sirens, it would be the national voice yelling "heads up!" What does the warning mean? What should be your immediate response? If you were to hear a 3- to 5-minute *steady* tone on the sirens, what would it mean? How should you respond?

2 What warning system has our community established to warn us of fire? natural disaster? nuclear attack? What would have been the effect over the past year if no such warning system existed? Can you think of ways in which the systems can be improved? What are the responsibilities of those in charge of warning systems? When is your community's system tested?

3 Which would be worse, to have no warning system at all or one which constantly issues false alarms? Why?

4 If you can locate a taped copy of Orson Wells' famous 1938 broadcast, "War of the Worlds," play it for the class and discuss rumor information. (Your local radio station or library may be able to help.) What is the difference between fact and opinion? How can erroneous information get started and circulate among the public? Ask your students to think of examples from their own lives. In an emergency, what is the best way to verify information?

Individual Activities

Have some students read Walter Lord's book *Day of Infamy*. Why did the warning system break down at Pearl Harbor in 1941?

Rumors of one sort or another are always circulating through a school. Have a team of students track one such rumor back to its source and report on the distortions of fact that took place in the rumor formation process.

Have some students role play three characters: one who thinks the attack warning signal is a false alarm and two others who try to convince him it isn't.

Prepare a chart of the warning signals your community uses. Have students add this information to their personal *survival manuals.*

Have students locate the warning systems and shelters on a map of your community and add to their *survival manuals.*

Have a student find out the schedule for testing the community warning system and report to the class.

Evaluation

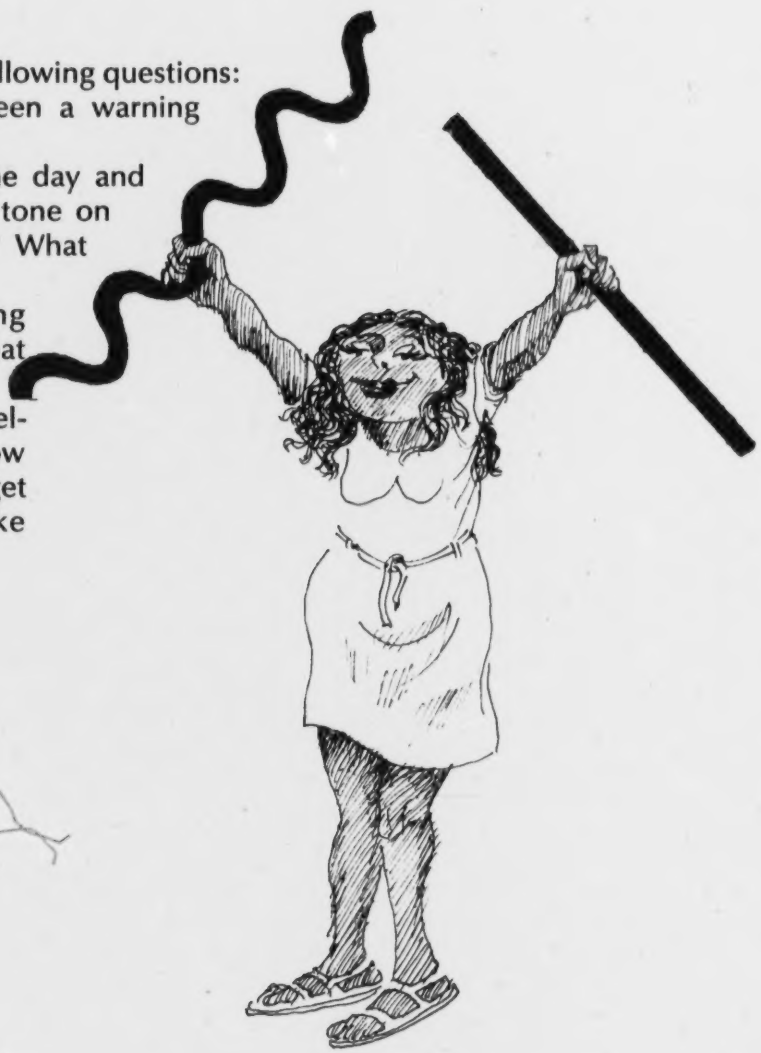
Write short responses to the following questions:

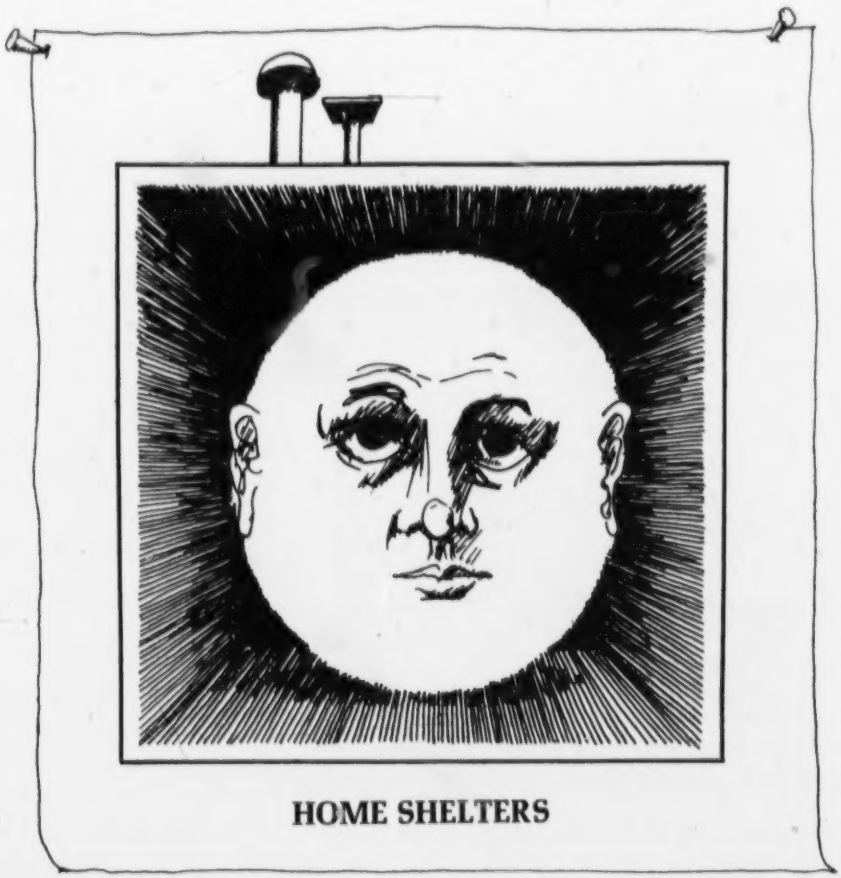
1 What is the difference between a warning and a rumor?

2 If you are at home during the day and hear a 3- to 5-minute steady tone on a siren, what would it mean? What should you do?

3 Suppose you hear a wavering tone. What would it mean? What should you do?

4 Where is the public fallout shelter nearest to your home? How long would it take you to get there? What would you take with you?

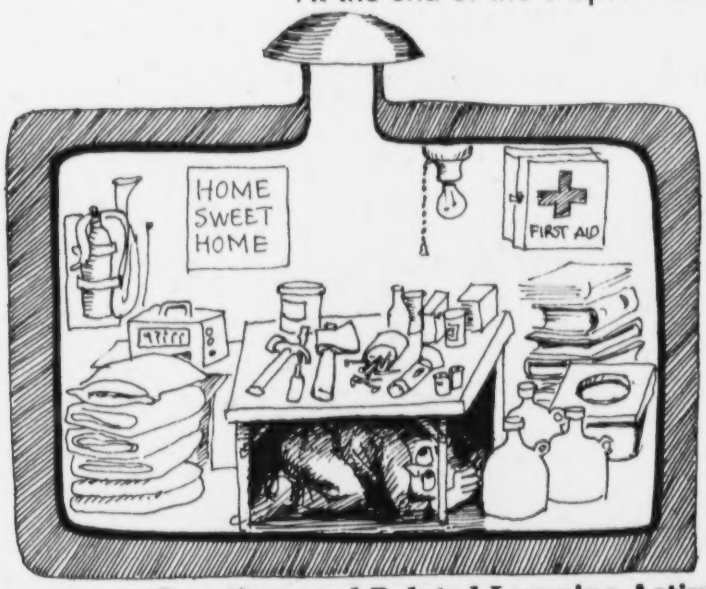




HOME SHELTERS

Chapter Goals

At the end of the chapter on home shelters, the student should:



1 Understand the necessity for taking shelter during certain emergencies.
2 Know what supplies he should stock for use in home shelter in a nuclear attack emergency.
3 Recognize his responsibilities to others sharing the shelter.
4 Be psychologically prepared to accept shelter living conditions.
5 Know some of the basic ways in which one can build a shelter in his own home.

Questions and Related Learning Activities

1 Introductory Activity: Select four students to participate in the introductory activity. Assume they are to spend the next week in a basement shelter. They will neither emerge, nor have any direct contact with the outside world. There will be air, a dirt floor, a concrete ceiling, no electricity, and only the provisions they bring with them. Each is allowed 10 minutes to decide what he will bring, and each should list no more than he can carry 2 miles.

While they decide, clear a space in the middle of the room. Have the four students bring their supplies into the shelter and find space for them. Have each tell the others what he has brought. (List on the board.)

2 Which of the supplies are necessities, and which luxuries? What is the crucial difference between the two? Are there enough necessary supplies to last the group a week? If people are in shelter to seek protection from radioactive fallout, they might not be able to emerge for *two* weeks. If they had to survive for this period of time, how would they ration their supplies?

3 Nuclear war is a terrible thing to think about, but it remains a possibility. If war should come, would the principal danger be blast, fire, or radiation? Would there be time to protect yourself from radioactive fallout? How long is fallout radiation dangerous? What are the characteristics of fallout?

4 If you were to build a fallout shelter in your home, where would you put it? If you had $500 to spend, what materials would you buy to construct the shelter? How would you build it? Why? (Refer students to References.)

5 Why would a battery operated radio be essential in a home fallout shelter?

6 Have students discuss whether or not this is an important part of the survival unit they are studying.

Individual Activities

If a videotape system is available, students can write and produce an original TV drama. The setting is a fallout shelter three days after a nuclear disaster. Suddenly there is a rapping on the shelter door. What happens? This plot idea can also serve as the basis of a radio drama or a one act play.

Draw a diagram of your home, indicating what areas are most suited to the construction of a family shelter. What building materials are necessary? Write to your local or State civil preparedness agency for further information. Using the yellow pages of the telephone book, call contractors and building supply stores to price the necessary materials. (Note: These drawings and plans can be added to the student's personal *survival manual.*

Investigate the effects of a 5-megaton nuclear explosion with the emphasis on the nature of fallout and radiation.

Investigate the causes, symptoms, and treatment of radiation sickness.

Draw an outline map of the community and show the location of public fallout shelters. Add the map to the personal *survival manual.*

If a home fallout shelter exists in the neighborhood, have students inspect it and report their impressions to the class. The students should also inspect the nearest public fallout shelter. Your local civil preparedness agency can help you locate one of each type.

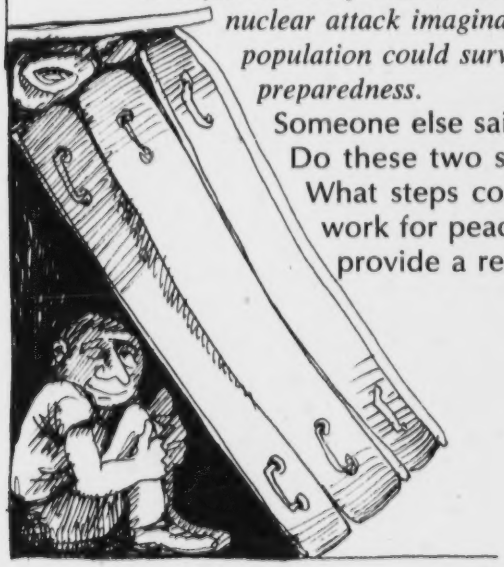
Evaluation

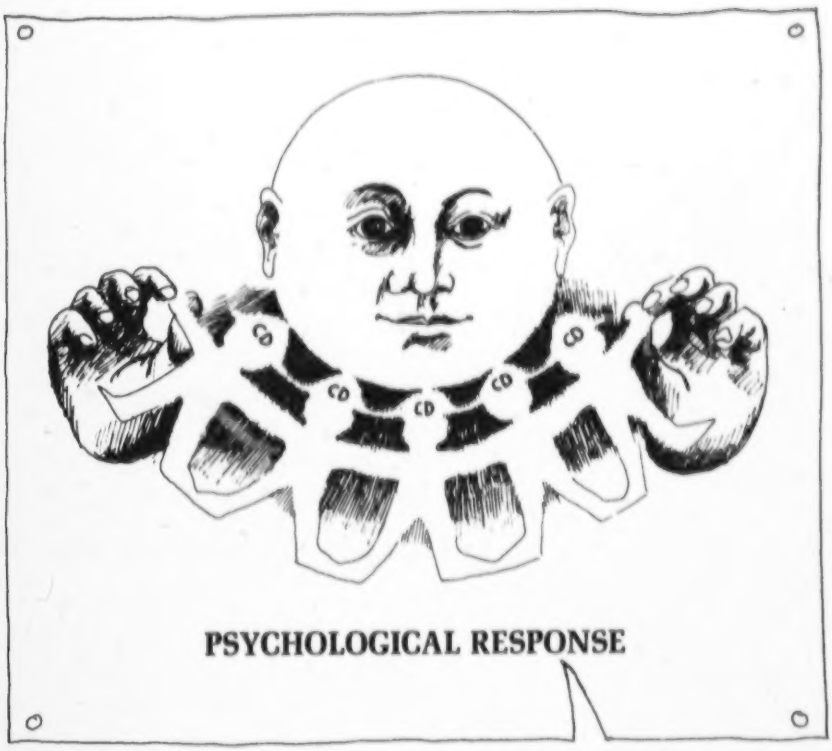
Dr. Werner von Braun said,

Everyone on earth lives within 30 minutes of potential destruction by nuclear bombs or missiles. Our times are perilous—almost unthinkably so. And yet, it is for that very reason that we must think about it, too . . . Even with the worst nuclear attack imaginable, it is still possible that a very large portion of our population could survive if the proper steps are taken now in civil defense preparedness.

Someone else said, "Peace is the best shelter."

Do these two statements necessarily contradict one another? What steps could you take now to prepare for survival and to work for peace? List these steps as specifically as you can, and provide a reason for each of them.




PSYCHOLOGICAL RESPONSE

Chapter Goals

At the end of this chapter, the student should:

1 Be aware of the importance of being psychologically prepared for potential disaster situations.
2 Know what initial physiological reactions are normal in an emergency.
3 Understand his own usual reaction to an emergency.
4 Know how to overcome his initial fear so he can respond appropriately to an emergency.

Questions and Related Learning Activities

1 Introductory Activity: Choose five students to sit in a circle. They are to pantomime the emotions they feel as the following story is read to them:

"You are in a party of Roman aristocrats who have come together in the house of Graccus Amicus for three days of pleasure.

"The house happens to be in the shadow of Mt. Vesuvius in downtown Pompeii.

"An earth tremor passes through the room and a deep subterranean rumble emanates from the volcano.

"Through the window you see the volcano explode in a roar of fire and molten mud and lava."

Ask the class to identify the emotions portrayed and ask the players to agree or disagree with the interpretation. If the sequence is pleasure, anxiety, fear, and panic, which of these emotions are rational and which are irrational? Why? At what point in the story should the players have taken action? What should that action be? Why would panic have interfered with rational action? Why could you say that fear is a good emotion and panic a bad one? These examples have all dealt with psychological response. Would you say that psychological response to disaster is the most important factor in determining one's chances for survival in an emergency?

2 One of the most effective scenes in American literature is in Stephen Crane's *The Red Badge of Courage*, when the recruit, Henry Fleming, runs in panic from battle. Read the following excerpts from the story and ask the questions as they relate to the text.

> *The youth stared. Surely, he thought, this impossible thing was not about to happen. He waited as if he expected the enemy to suddenly stop, apologize, and retire bowing. It was all a mistake. (Chapter VI)*

The emotional response of the boy is powerful. He cannot believe he is about to be killed. Is this a typical human reaction? How would you feel if you were in a similar situation—say in the midst of a hurricane or a tornado? If disbelief is a normal first reaction to disaster, what should your reaction be upon realizing that what you most feared has come true?

> *. . . His neck was quivering with nervous weakness and the muscles of his arms felt numb and bloodless. His hands, too, seemed large and awkward as though he was wearing invisible mittens. And there was a great uncertainty about his knee joints.*

What are the physical effects of fear and anxiety? How do your symptoms differ from Henry Fleming's? What could he do to rid himself of this paralysis? Is paralysis a good word to use here? Why or why not?

> *He began to exaggerate the endurance, the skill, and the valor of those who were coming. Himself reeling from exhaustion, he was astonished beyond measure at such persistency.*

How can great fear produce an irrational exaggeration of the dangers existing in a given situation? If you have ever felt like Henry Fleming, did it turn out that your fears were justified? Ask for examples.

> *A man near him who up to this time had been working feverishly at his rifle suddenly stopped and ran with howls. A lad whose face had borne an expression of exalted courage, the majesty of he who dares give his life, was at an instant smitten abject . . . He, too, threw down his gun and fled. There was no shame in his face. He ran like a rabbit.*

Why is panic, like measles, contagious? At this point in the story, Henry Fleming flees from the battle, only to discover later that the attack had been beaten off. How do you suppose he felt? What was his responsibility to the rest of the regiment? If you were an officer, would you punish him? How? According to your values, what should he have done? In a crisis situation, should reason, emotion, or instinct predominate? Are they necessarily at odds? Why or why not?

3 In view of the conclusions that emerged from the discussion, what is the most rational reaction to great danger? Does it depend on the form the danger takes?

Individual Activities

Read *The Open Boat* or *The Red Badge of Courage* by Stephen Crane. How does irrational fear motivate the actions of the main characters? Contrast the actions of the oiler and Henry Fleming to the central theme of Rudyard Kipling's poem, "If". Read George McDonald Fraser's satire of Victorian England, *Flashman*, and think about the main character's reaction to danger. Compare it to the "code" of Ernest Hemingway's heroes.

Look up the words *panic* and *hysteria* in a good dictionary. What was the original etymological derivation of each? Are they appropriate? Why?

Investigate the psychological reaction of London citizens to the German "blitz" of 1940. Is it true that times of great emotional stress bring out the best in people? What are the physiological manifestations of anxiety? How do they affect human reactions to danger?

Conduct a debate: Resolved: Women are more psychologically prepared to handle stress than men.

Students can conduct a survey among their parents. What was the most dangerous situation in which you ever found yourself? How did you react psychologically?

What is the effect of adrenalin on a person during times of stress and danger? Refer to an encyclopedia. Do animals share this reaction?

Write and produce a radio play in which one of the characters "goes to pieces" as a result of some emergency. Discuss the causes and effects.

Have students draw original cartoons on the theme of psychological response to danger.

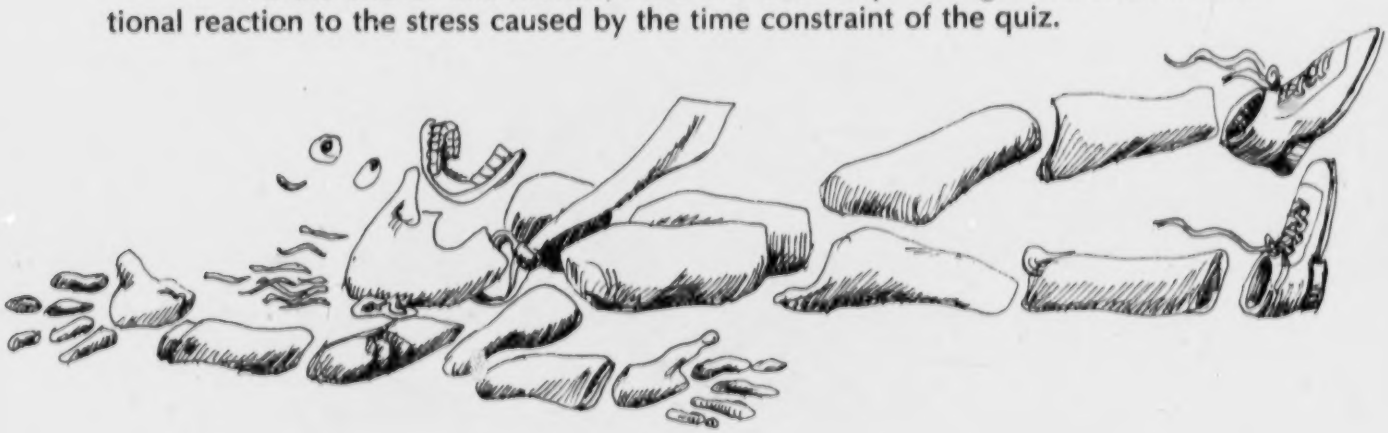
Choose certain disasters from the text and have students role play their psychological responses.

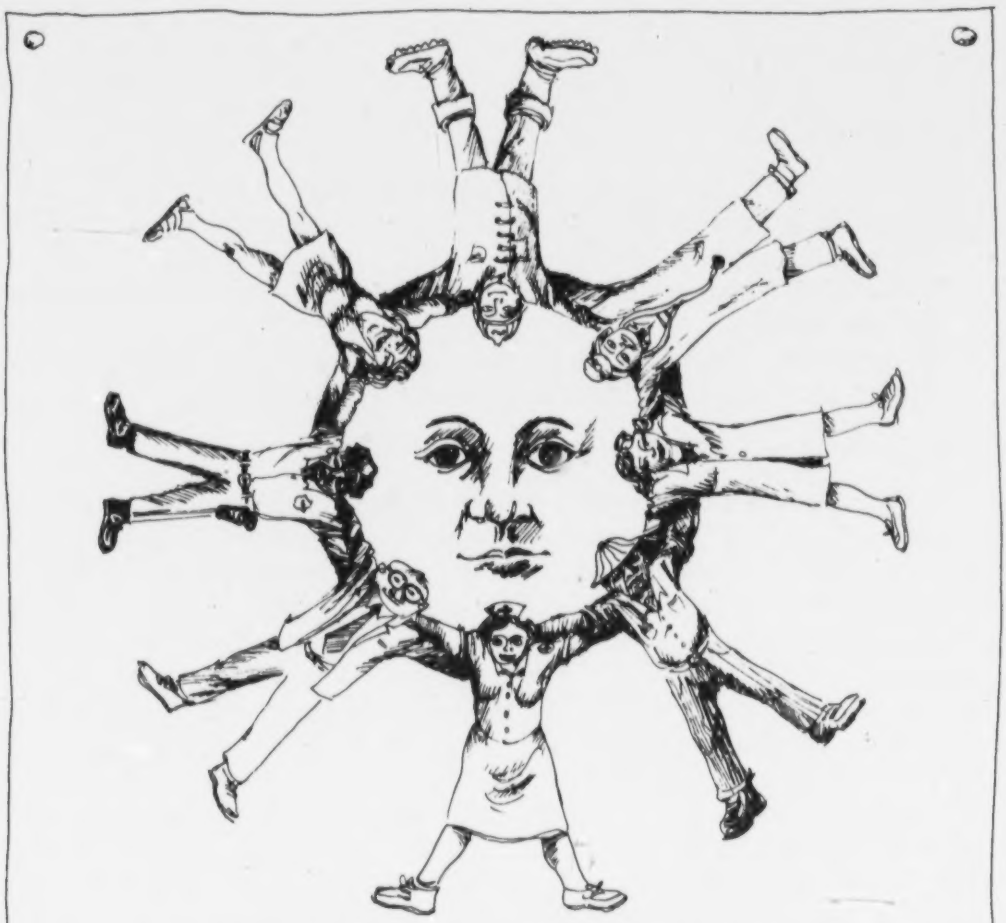
Invite a doctor or psychologist to speak on the emotional and physical effects of stress on human beings.

Evaluation

You have one minute, no more, to list and discuss the main ideas of the chapter on psychological response. Start now.

At the end of one minute, have the class stop writing. Discuss their emotional reaction to the stress caused by the time constraint of the quiz.





COMMUNITY AND GOVERNMENT ACTION

Chapter Goals

At the end of this chapter, the student should:

1 Know the responsibilities of local, State, and federal government before, during, and after an emergency.

2 Understand the structure and function of civil preparedness in the community and the Nation.

3 Be aware that preparedness is the responsibility of all citizens.

4 Accept that responsibility and be ready to carry it out.

Questions and Related Learning Activities

1 Introductory Activity: Suppose America had not been discovered until 1942, rather than 1492. You are newly arrived settlers and have been given the responsibility of creating a structure for the protection of the community before, during, and after a natural or manmade disaster. Discuss the following questions and arrive at sound, workable conclusions. Given the geographic location of your community, what natural disasters are likely to occur? How can the community prepare to minimize danger and destruction during each of these disasters? What sort of functions must be carried out by the community during and after a disaster? Should someone have the key responsibility for coordinating all of the community's efforts? What sort of person should this be? How much power should he or she have to delegate responsibility? What should be the responsibility of each citizen? Preparedness costs money. How can this money be raised? Is community protection a legitimate use of tax money? What sort of coordination and communication should be established with other communities? Why?

2 Have the class prepare a diagram of their community civil preparedness structure. Who are the key officials in the community responsible for civil preparedness? During a disaster, what is the role of each of them? From where, and how, do they receive information which determines their decisions? The text describes the role of the Federal Government. How does this role relate to the community? What nongovernmental agencies help people cope with disaster?

Individual Activities

Interview people responsible for some aspect of protecting the community. How have they been trained to perform specific planning or emergency service functions? Ask for ideas on how community civil preparedness can be improved.

Visit the local Emergency Operating Center. Where is it located? How is it staffed? How does it operate? Is there an emergency operations plan?

Invite speakers from local government, including the police and fire department, to discuss plans and preparations to safeguard the community.

Draw an outline map of the United States to show the national headquarters of the Defense Civil Preparedness Agency (DCPA); the several regions and the DCPA staff college at Battle Creek, Michigan; the National Warning Center at Colorado Springs, Colorado; and your own community.

Write a short history of your community in terms of the major disasters which have occurred during the past 50 years. What has been done during this period to cope with disasters?

A comedian has created a character called "The 2,000-Year-Old Man." Tape an interview with a "2,000-year-old man", asking him to describe some of the disasters he has survived—Pompeii, the plague, Great Lisbon Earthquake, etc. How did people react? What did the government do?

Investigate some major disasters; e.g., the Rapid City flood, Tropical Storm Agnes, the San Fernando earthquake, or a major local disaster. How did local, State, and federal government cooperate to reduce suffering and to help people recover? What legislation was proposed or passed as a result of these disasters?

Find out how herds of animals, flocks of birds, and schools of porpoises band together and cooperate in a threat or emergency situation. Can you learn anything helpful from their instinctive actions?

Evaluation

Complete the following sentences:

1 When an emergency occurs, the mayor (or chief executive) gets his information from

_____

2 The primary function of civil preparedness is to

_____

3 Before a disaster occurs, the civil preparedness structure of our community is responsible for

_____

4 Some aspects of planning and emergency action are local functions, but the Federal Government—through the Defense Civil Preparedness Agency—also helps by

_____

5 The responsibilities of the individual citizen during an emergency are to

_____

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4 *Civil Defense*, Defense Civil Preparedness Agency, MP-54.

5 *Civil Defense and Clean Air*, Defense Civil Preparedness Agency, TR-66.

6 *Civil Defense Display Catalog - Exhibits*, Defense Civil Preparedness Agency, MP-9.

7 *Civil Defense Motion Picture Catalog*, Defense Civil Preparedness Agency, MP-6. The following films are recommended:

a "A Day in September," DOD CD 20-269, 1968 (28 minutes)
b "A Hurricane Called Betsy," DOD CD 20-251, 1966 (29 minutes)
c "A Lady Called Camille," DOD CD 20-274, 1971 (27 minutes)
d "A + School, The," DOD CD 5-242, 1966 (7 minutes)
e "About Fallout," DOD CD 3-220, 1963 (24 minutes)
f "Architecture and the Atom," DOD CD 5-271, 1970 (25 minutes)
g "Briefly About Fallout," DOD CD 3-256, 1967 (8 minutes)
h "Earthquake," DD-CP 20-278, 1972 (29 minutes)
i "The Face of Disaster," DOD CD 20-239, 1965 (10 minutes)
j "The Five Days of Betsy," DOD CD 20-250, 1966 (12 minutes)
k "In Time of Emergency," DOD CD 20-272, 1970 (25 minutes)
l "It Happened in Texas," DOD CD 20-268, 1968 (9 minutes)
m "Mutual Aid—The 'us' in Industry," DOD CD 20-237, 1965 (25 minutes)
n "Once to Make Ready," DOD CD 5-258, 1967 (8 minutes)
o "One Week in October," DOD CD 20-223, 1964 (29 minutes)
p "Operation Cue," DOD CD 20-232, 1964 (14 minutes)
q "Our Active Earth," DOD CD 20-277, 1972 (29 minutes)
r "The Protected School," DOD CD 5-235, 1965 (6 minutes)
s "Slanting," DOD CD 20-251, 1967 (9 minutes)
t "Though the Earth Be Moved: The Alaskan Earthquake," DOD CD 20-238, 1965 (45 minutes)
u "Trouble at Tonti Station," DOD CD 55-276, 1972 (25 minutes)

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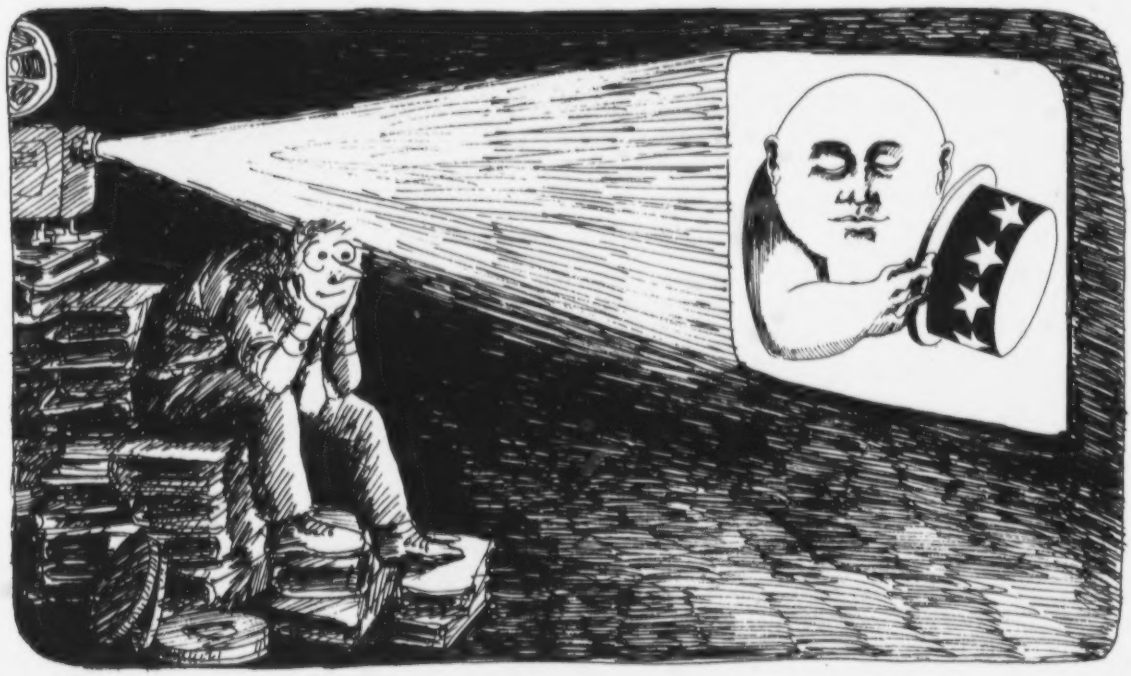
25 *Tornado Watch*, U.S. Department of Commerce, Environmental Science Services Administration.

26 *Thunderstorms*, U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

27 *Winter Storms*, U.S. Department of Commerce, National Oceanic and Atmospheric Administration.



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